European Association of Establishments for Veterinary Education

and the **Federation of Veterinarians of Europe**

European System of Evaluation of Veterinary Training

REPORT ON THE VISIT TO THE FACULTY OF

VETERINARY MEDICINE OF MILAN, ITALY

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INTRODUCTION

The school of Veterinary Medicine of Milan was established in 1791. In 1860 it was awarded the qualification of granting a “Doctor in Veterinary Medicine” by the former Ministry of Public Education of the Italian Kingdom, in 1932 the school was transformed into the Faculty of Veterinary Medicine and became part of the State University of Milan.

The present downtown locations are in use since 1927, the Lodi centre comprising a Large Animal Hospital and an Experimental Farm about 38 km outside Milan became available in 2005; the whole faculty should have moved there by 2014.

There is a government approved national veterinary curriculum which was subject to several changes since 1988. It is regulated since 1999 via a general framework established by the Ministry of Instruction, University and Research (MIUR) as outlined in law DM 509/1999. Within this frame work amendments have been made in 2004 allowing for a new curriculum to start in October 2009 (see also chapter 4).

Apart from providing a straight forward program directed towards the degree of a veterinary surgeon, the faculty also offers undergraduate degree courses other than veterinary medicine. The cost arising from these programs are covered by the faculty budget.

The faculty was first visited in December 1988 with the visit resulting in many suggestions. The present visit is the second one.

1. OBJECTIVES and STRATEGY

1.1 Findings

Major objective of the “Facoltà di Medicina Veterinaria”, from there on called Faculty, is to provide an intellectual and physical environment in which the highest level of education, learning and research in animal sciences can be ensured for the benefit of animal life and health and for related human and ecosystem health. The Faculty encourages mutual collaboration and respect, diversity and integrity.

To reach these objectives the Faculty has established systems of assessment of teaching objectives, student competences and research objectives and quality.

1.2 Comments and suggestions

The objectives of the Faculty and the strategy to meet them are clearly laid out and convincing.

The only suggestion relates to the term “Animal Science” which has a specific meaning in the Anglo-American system not related to veterinary medicine and should therefore be replaced by “Veterinary Science”

2. ORGANISATION

2.1 Findings

The Faculty is one of the nine faculties of the University of Milan (UNIMI) and hence embedded into the structure of the university. The organization is in detail outlined in the SER, chapter 2.

Briefly the university is headed by a Rector who serves a 4 year term; he is elected out of the group of full professors by the entire teaching staff and a quota of the technical staff and students and may nominate a Vicar Pro-Rector and up to 3 Pro-Rectors. Their nomination has to be approved by the Academic Senate who is composed of the group of rectors, the deans of all faculties, the administrative director, 4 full and associate professors, 4 researchers, 3 representatives of the technical/administrative staff and 6 students. The elected members serve a 3 year period. Among other matters the senate is responsible to set and assign the "adjusted amount" (see chapter 3) of the state-derived Ordinary Financial Support (FFO) and other minor financial support to the individual faculties, mainly depending on the number of students enrolled. Additional criteria are educational productivity, scientific performance, tutorial activity, international teaching collaboration and incentive for innovations. The senate further decides on the opening of new positions for teaching staff.

The Board of Directors consists of the rector, the vicar pro-rector, the managing director, 8 members of the permanent academic teaching staff (full and associate professors, researchers) who are elected by the permanent teaching staff of the 9 faculties, 3 technical staff and 3 student representatives, a representative of the MIUR and the general director of the Lombardy region budget. The Board of Directors is responsible for the budget administration and for the technical personnel of the entire university.

Other committees on the university level are:

the Research and Technological Transfer Committee,

the Self Evaluation Committee,

the Service Centers of the UNIMI

and the more than 60 Research Centers or Services of the UNIMI.

The Faculty is headed by the Dean who may serve for a 3 year and – in case of reelection – for another 3 year term; election is by the Faculty Council (FC) which is chaired by the Dean and composed of the entire permanent academic staff (full and associate professors, researchers) and student representatives (15% of the academic staff). The FC is responsible for all teaching and curricular matters as far as they are within the responsibility of the faculty; it decides the type of allocation of the budget that the faculty receives from the university, it defines and assigns new professorial and research staff positions.

The Commission for Teaching Affairs is inaugurated by the FC at the beginning of each dean's mandate. It deals with general teaching objectives of all courses of the Faculty.

Constitutive members of the Teaching Coordination Commission (TCC) are all teachers involved in implementing the veterinary curriculum and student representatives (15% of the TCC but not less than 5); they elect the TCC-president. Other than the Commission for Teaching Affairs the TCC deals with more detailed and daily matters, e.g. related to teaching objectives of each course or changes and removal of specific courses or the timetable of courses.

Concerning stakeholders the dean has official consultations with representatives of the Veterinary Orders of the Milan and Lodi province.

The faculty is organized in 4 departments:

the Department of Veterinary Technological Sciences for Food Safety (VSA),

the Department of Veterinary Pathology, Hygiene and Public Health (DiPAV),

the Department of Animal Science (DSA), and

the Department of Veterinary Clinical Sciences (DSCV).

The departments consist of 4 to 10 units, each of them headed by a Coordinator as listed in the SER (page 41/42). Each department is headed by a Department Head who is elected by the Department Council (DC) out of the group of full professors. The DC is formed of the entire permanent academic teaching staff (full and associate professors, researchers) and 1 member of each the technical staff, administrative staff, group of doctoral and postdoctoral students. Further responsibilities of the DC are of coordinating and promoting nature. The Department Head runs the activities and administration of the department, with – however – leaving some autonomy with the units.

2.2 Comments and suggestions

The present structure with many units per department reflects the situation of former teaching responsibilities. It does not, however, promote discussion and coordination of teaching between departments in order to cope with the requirements of the 1999 and in particular the 2009 curriculum. Actions should be taken to restructure and optimize the structure of the faculty, also in regard to the services provided, at the latest with move of the Milan campus to Lodi.

3. FINANCES

3.1 Findings

The faculty is financed according to the Italian public administration system which is mainly based on the state-derived **Ordinary Financial Fund (FFO)** which amounts up to roughly 70% of the Faculty budget; about 20% are derived from student tuition fees and about 10% from the income of the services provided by the faculty and commissioned research activities.

The FFO consists of two parts, a warranted amount (FFOw) which is assigned to the university based on fixed criteria (e.g. number of staff) and an adjusted amount (FFOa) which is allocated on certain quantitative (number of students, number of students graduated within the allotted time frame of 5 years) and qualitative criteria (i.e. educational productivity, scientific performance, quality and incentive for innovations). The relative weight of students varies between 1.02 (e.g. humanities, law) and 1.4 (veterinary medicine, medicine, exercise sciences).

In 2008 governmental support of the faculty as passed on by the university amounted up to roughly 21,339,610.- € with 19,513,069.- € going into salaries, 1,812,560.- € into teaching and research and 14,001.- € into continuing education. Another 2,406,061.- € is revenue largely created from diagnostic and clinical services and another 1,432,819.- € represent research funds by third parties.

When considering these figures (total 25,181,489.- €) and the total number of undergraduate students enrolled (2200 = 1407 students of Veterinary Medicine, see Tab. 9.3 + 793 students of other courses) the annual cost per student amounts up to 11446.- €.

3.2 Comments and suggestions

There are never enough funds available for a university and a faculty and there is never enough academic staff, particularly if the Faculty feels obliged to adequately execute the veterinary curriculum (see chapter 4) by following “Humboldt’s” concept of teaching and learning. As indicated in chapter 10, ratio R1 indicates that there is some shortage in academic staff. However, as outlined there, this figure is not very strong. Nevertheless some more teaching capacity should be made available to the faculty, particularly in respect to future clinical activities.

In no way do the revenues directed towards to the faculty suffice for the important, and urgently necessary, renovation of buildings at the Milan Campus (Via Celoria) and replacement of in part outdated equipment. However, if the plans to move this campus to the Lodi site are executed as planned by 2014, no special fiscal efforts beyond maintenance and guaranteeing functionality seem to be necessary to salvage the central Milan Campus.

4. CURRICULUM

4.1 General aspects

4.1.1 Findings

Presently the Faculty in parallel executes two curricula.

The curriculum which applies to the students from the first semester of the second year until graduation is in effect since 1999; the new curriculum will start with its first year in October 2009 and is based on a credit system.

The present visitation report is based on the 1999 curriculum as there are no experiences with the new curriculum so far and as detailed information is only available for the first year. Consequently only short comments will be given when appropriate (see 4.1.2)

The 1999 curriculum, from now on called curriculum, and its presentation in the SER was an intellectual challenge for the team. It consist of 3449 hours EU-listed subjects to be take by every student, 240 hours of elective track-studies, 750 hours of an individually planned pre-professional training and 375 hours individually organized thesis work

Only towards the end of the visit did it became more or less clear that pre-professional training can only be taken after year 5 or already during the 2nd semester of year 5 with the clinical rotations and electives being scheduled respectively for the 1st semester of year 5 (9th semester) and for the 2th semester of year 5 (10th semester). Even 5th year students had difficulties to give clear information on the curriculum. There are apparently many redundancies having the inherent problem that the same topic is presented in different ways, also in respect to functional aspects.

Depending on the year the Faculty may offer more than 10 tracks; a track is implemented if a minimum of 5 students enroll; at the time of the visit 12 tracks were active. As a consequence of the fact, that some of the tracks may contain no clinical training at all, a situation also applying to the thesis work, for calculation of the ratios R7 only the clinical training to be taken by every student and the hours of clinical training assigned to the pre-professional training have been taken into account; in spite of these restrictions and as is indicated in chapter 4.7 the present denominators derived by ECOVE are met.

Based on the situation as found at the time of the visit it can be stated, that all subjects listed in Directive 2005/36/EU are covered with a, however, varying degree of satisfaction (see below). Contributing to this situation is the abundance of elective tracks in the second semester of year 5. It appears that any track could be offered according to the liking of a professor, disregarding the need to maintain a broad common educational basis.

The team was surprised by the fact, that the Faculty does not maintain an adequate stock of teaching animals, e.g. for propedeutical instructions and demonstrations in anatomy and physiology. This applies for dogs, cattle, pigs and to some extent also for horses. It was further felt that a required exposure to animals, in particular food animals, comes too late in the curriculum. There is no mandatory agricultural practi-

cum in an animal farm, and this situation is not compensated by an extramural training.

Though the curriculum is straight forward on paper, it is not so for many students under practical conditions as indicated by the many repeaters and off course students. According to the visiting team this problem also relates to the Italian system which does not allow a limitation of repeat exams taken; the team was also informed that the way examinations are performed may add to the problem.

The pre-professional training (18 credits earned during one semester by following "courses" with specific veterinary subject, 12 credits during the 2nd semester of year 5 or afterwards by following "courses" in 4 different subjects) is mainly done in-house and only in part sustitutes (2 "courses" only) for an extramural training which so far was not required but on a voluntary basis only except for 1 day in a slaughter house.

4.1.2 Comments

The lack of a course on practice management has been pointed out to us by the alumni, who identified this as a deficit and would very much recommend such a course being incorporated into the curriculum.

The faculty has apparently recognized the problems with the 1999 curriculum and the curriculum implemented in 2009 seems to solve some of the problems, particularly in respect to the structure of years 4 and 5. As there is no further information on implementation of this curriculum, no further comments can be made.

4.1.3 Suggestions

The 2009 curriculum must be organized in a way that teaching on life animals is definitively improved (see 4.1.1), redundancies must be avoided.

The mandatory tracking system should only account for tracks which are at the core of veterinary education. Any other "tracks" might be offered on an optional basis. The curriculum must guarantee an acceptable level of hands-on clinical training (see ratio R7).

The course of studies must be accompanied by an examination system which will allow the students to pass their exams on time, ensuring a 5 year study time.

It is strongly suggested to implement extramural training in veterinary practice and public health institutions; the faculty should ensure the quality of this training.

4.2 Basic subjects and sciences

4.2.1 Findings

4.2.2.1 Facilities and equipment

As in many other countries the Italian system does allow students with a high and low background in natural sciences to enter veterinary education. Clearly “low background students” have more problems with subjects such as biochemistry or molecular biology. To cope with this situation the teaching staff must compromise by adjusting the level of teaching, making other students feeling bored.

Basic subjects and sciences are generally taught at the Milan Campus, except for a part of Anatomic Pathology where some practical exercises may also be taken at the Lodi Campus. Basic subjects and sciences are covered in the first and second year of the curriculum, except for Pharmacology and Toxicology which are taught in the third year (old curriculum).

The ratio between theoretical and practical training varies between subjects with a mean ratio of 4:1 according to the SER.

The introduction of the new curriculum with more practical work may be leading to a ratio that in some cases may decrease to 2.5:1.

The students are divided into groups of 20, 30 or 40 for the practical exercises and teachers often have to repeat the same class five or more times. Regularly, two teachers assist each practical class. Due to the rotation of groups amongst courses, some practical exercises only last for one hour, even if the subject is as complex as to perform a necropsy.

Practical teaching of Anatomy is mainly based on the use of cadavers of ruminants (9/year), heads and limbs of horses (5/year) mainly purchased in the abattoir and finally 2 dogs. In the particular case of dogs the study involves splanchnology only. Students manipulate either fresh or frozen samples.

The topic of Anatomic Pathology is divided into 3 practical exercises, Anatomic Pathology, Oncology and Necropsy. Three different student groups are engaged in parallel at the same time working for 1 hour in each of the 3 practical exercises.

The number of cadavers used for necropsies in relation to the number of students graduating annually result in the following denominators:

No	Direction	Type	Fraction	Denominator Milan	Denominator ECOVE
R 18:	LL	no. of students graduating annually / no. necropsies food producing animals + equines	147.6 / 136.6	**0.92**	0.823
R 19:	LL	no. of students graduating annually / no. necropsies poultry/rabbits	147.6 / 742.3	**5.03**	0.370
R 20:	LL	no. of students graduating annually / no. necropsies companion animals	147.6 / 272.7	**1.85**	1.588

LL = lower Level

These figures indicate that the present lower limits set by ECOVE are clearly met.

Students are provided with disposable gloves, shoes and lab coats entering the necropsy room.

In Physiology, part II, live animals are used for practical teaching. Students have the opportunity to go with the teachers to farms that have agreements with the university (Faculty) allowing the use of their animals for teaching purposes.

Teachers of basic sciences are actively participating in the teaching of elective subjects, usually with one or two credits. Some of them also participate in the pre-professional training, especially Microbiology, Pathology and Animal Nutrition.

4.2.2 Comments

Apparently due to the large number of students and the teaching capacity of the Faculty, the ratio of theoretical teaching versus practical lectures favours theoretical teaching. The resulting ratio of 4:1 in basic subjects and sciences should be regarded as a problem which should be solved as soon as possible, preferably before moving to Lodi in 2014.

Though there seems to be a complete collection of bones, their availability to students seems to be restricted, not allowing adequate studies.

The number of animals used in anatomical dissections is definitely scarce and must be increased, especially in respect to companion animals. No good teaching can be provided when ten students crowd around a table, dissecting or watching others dissect.

The division of the practical exercises in Anatomic Pathology into three different courses should account for the fact that more time is required for necropsies than Pathological Anatomy or Oncology; 3 hours practical work does not meet the time required.

4.2.3 Suggestions

An increase in the number of companion animal carcasses for training in Anatomical Dissections should be given a high priority.

Organ preservation systems such as polyethylenoglycol embedding should be considered as important to keep a good collection of anatomical preparations in anatomy practical exercises.

Anatomic Pathology should consider the need of students to have more time devoted to necropsies under proper supervision.

Suggestion: The lack of companion animal carcasses in anatomical dissections might be considered a **category 2 deficiency**.

4.3 Animal Production

4.3.1 Findings

Animal Production is not identified to the students as a subject of its own. The different aspects, such as housing, nutrition, health monitoring, preventive strategies etc. are included in many different courses on husbandry, nutrition, or infectious diseases etc. and appeared poorly if at all coordinated between departments and units. Herd health management in different species is not taught in an integrated course and those lectures addressing herd health management are almost only theoretical. Similarly Agronomy, e.g. silage production, pasture management and use of particular feeds and plants is taught only theoretically.

As stated in the SER, the dairy farm at Landriano with 180 cattle in total and about 100 dairy cows could be used for research and teaching by the Faculties of Agriculture and Veterinary Medicine. There is also a Goat Farm at Borgo Adorno with about 300 animals. For time reasons both farms were not visited by the team and it remained unclear how these farms are used for teaching Animal Production. There seemed to be no organized and mandatory teaching for students on both farms.

A new experimental farm (EF) on the Lodi Campus was built in 2009 close to the Large Animal Teaching Hospital (LATH). The farm provides housing facilities for poultry, rabbits, pigs and cattle (beef and dairy). The farm will start to operate at the end of 2009.

About 70 dairy cows are planned to be housed in the dairy building. The barn for dairy cows will be leased and the herd of dairy cows will be property of a private farmer. The Faculty plans to contract the farmer, that the dairy herd can be used for research and teaching.

For the team it remained unclear how research and teaching will be coordinated at the experimental farm, in particular within a dairy herd owned by a private farmer. Ideas of the head of the experimental farm and of professors from the Faculty appeared at least in part conflicting.

The bovine section of the LATH is not involved in the dairy herd management. A strategy how herd health management will be introduced into the curriculum using the new farm was not presented. This also accounts for swine herd health manage-

ment. There is no Mobile Ambulatory Clinic which could support teaching in herd health management.

4.3.2 Comments

In general but in particular in relation to farm animals, exposure to animals within the curriculum is too late (4th year) and not intensive enough.

Teaching of herd health management (e.g. cattle, small ruminants, pigs, poultry) was found incomplete, also in relation to the topics taught (e.g. mastitis, fertility, biosecurity) and uncoordinated.

More practical exercises for teaching in agronomy are needed.

4.3.3 Suggestions

Provide more integrated lectures on herd health management in dairy, beef, poultry and pork production. Include HACCP concepts and farm to table strategies in teaching on herd health management and demonstrate the importance of animal production for human nutrition.

Contract dairy, pig, poultry and rabbit farms in the region, where herd health management is provided to allow practical instructions

Start as a center of expertise a trouble shooting practice, e.g. on lameness, mastitis, fertility control or infectious diseases in order to become attractive for private farmers as an institution which provides Herd Health Services. Identify regional deficits in the provision of veterinary services in the area of Herd Health Management so that the Faculty can take over.

Structure the experimental farm in a way that it serves teaching in Herd Health Management, also in respect to swine and poultry.

4.4 Clinical Sciences

4.4.1 General

4.4.1.1 Findings

While small animal clinics are taught at the Milan Campus, the clinical teaching for food animals and horses (equines) is at the Lodi Campus (LATH). This separation is very strict, apart from the services offered by the clinical laboratory at the Milan Campus and some special services provided for small animals at the LATH. By at large clinical hands-on training is restricted to 4- and in particular 5-year students with the onset of clinical rotations. These students must have passed the exam following year 3 to guarantee the necessary theoretical background for hands-on clinical training.

All 5th year students entering the rotation system are exposed to a minimum of 199 hrs of hands-on clinical training. More hands-on clinical training is generally obtained during the pre-professional training (375 hrs). However, depending on the track chosen and the unit where the “Graduation Thesis” is prepared, students may bypass any further clinical hands-on training (see chapter 4.1.1).

A general problem relates to the propedeutical instructions and hence the safe handling of animals. During the visit the team did not become aware that these instructions were provided in time by making use of live animals, teaching the students the safe handling and examining of large and small animals (patients) in years 4 and 5.

4.4.1.2 Comments and suggestions

Exposure of students to instructions on the safe handling of animals and examination of large and small animals should be intensified and placed earlier in the curriculum. A cooperation with Anatomy and Physiology should be established.

Hands-on clinical training should be intensified by classifying only those tracks as mandatory, which contain a substantial part of hands-on clinical training.

4.4.2 Small animals

4.4.2.1 Findings

The small animal clinic operates between 09:00 and 16:30 on working days; it is closed for 2 weeks at Christmas and New Year, for 1 week during Easter and for 4 weeks during summer. There are no night and weekend shifts providing emergency service.

Most cases are referred, among them virtually no infectious patients. Animal consultation and treatment is restricted to the day of presentation, only exceptionally few animals become stationary patients and are kept over night. There are no isolation facilities.

The clinic lacks an intensive care unit.

As a result of this situation hands-on clinical education in small animal medicine is deprived of essential segments.

Otherwise, however, students involved in clinical training are well taken care off and, in general, trained on up to date instruments. In all small animal clinical institutions visited (internal medicine, surgery with radiology, reproduction) student groups dealing with patients, animal material (e.g. semen) or non animal material (e.g. radiographs) are kept between 1 and up to 5/7 students and were well tutored by the scientific (junior and senior) staff.

There is an acceptable patient load; however with R16 being 43.33 the present lower limit of 56.62 is not met

Students are trained in communication with patient owners as well as in the diagnostic pathway resulting in specific treatments. All students and staff seemed to be highly motivated.

4.4.2.2 Comment

Essential parts of the clinical training are missing due to the special situation at the Milan Campus. According to present standards the clinic does not meet the criteria of an “Animal Hospital”, a basic requirement for veterinary education. The team did not encounter any dissatisfaction by the staff about this situation during the visit. No perspectives were presented how the situation might change after the whole Faculty had been moved to the Lodi campus.

4.4.2.3 Suggestions

Seek for an interim solution at the Milan Campus and speed up the process of moving the facilities to the Lodi campus with the perspective to establish a small animal hospital. Until this has been accomplished there is a severe deficit.

Suggestion: There is the suggestion of a **category 1 deficiency** as important segments on clinical training in small animal medicine are missing.

4.4.3 Large animals

4.4.3.1 Findings

Hands-on clinical training on large animals is restricted to the Lodi Campus and students have access to hospitalizes patients on a regular basis.

Food Animals: At the LATH about 5 to 10 cattle are hospitalized on a regular basis, occasionally also sheep and goats. The team is highly motivated.

However, teaching in particular in swine medicine - but also for small ruminants - appeared to be very marginal

There are only few propedeutical animals with no swine among them.

The LATH does not provide a Mobile Ambulatory 24 hrs service for farms in the area, but there are plans to operate the Hospital on a 24 hrs basis.

Equine: The equine unit in the Lodi location is driven by enthusiastic staff members whereby referral cases are treated on a high standard level (especially the sport medicine). However, there is a lack of first opinion cases (e.g. castration of young stallions) and the surgical and orthopedic units need further development. With 1.74 ratio R14 is close to the lower level of 2.529 presently established by ECOVE (see chapter 7.1).

The team was pleased to see that there were some (5) propedeutical horses and that the 24 hrs service provided involves students, who are offered good boarding facilities at the LATH.

4.4.3.2 Comments and suggestions

The total number of bovine cases the students have access is at the bottom level to allow adequate clinical hands-on training.

This situation is not compensated by providing a sufficient number of propedeutical animals, services of a mobile clinic or a herd health service. The Faculty should seek to make use of all these options to increase the number of ruminant patients.

In this respect the running of a mobile clinic or other services providing access to farms is a must.

Similarly the deficits in swine medicine (no patients or patient material, no herd health program, no propedeutical animals) must be overcome.

Although some (5) clinic owned horses are present for educational purposes in equine medicine, an increase of the number of these horses/ponies is required since these live animals can be used for students in different years (first contact, propaedeutics, more in depth training, eventual blood donors etc.). Contact with local horse breeders can be set up if possible in order to provide students the essential first opinion cases.

This situation results in the suggestion of two **category 1 deficiencies**:

a) Lack of a mobile clinic

b) Lack of propedeutical animals and shortage in food animal patients, in particular in respect to swine medicine (patients/ patient material)

4.5 Food hygiene and technology and veterinary public health

4.5.1 Findings

Described in the SER were a total of 255 hours of teaching to be taken by each student.

- Lectures - 80 hours on inspection and control of animal foodstuffs; 25 hours on food technology; 9 hours on food science and legislation; 5 hours associated with practical work.
- Laboratory and desk based work 55 hours
- 27 hours practical work in compulsory courses using organs with lesions from cattle, small ruminants, pigs and horses slaughtered at local abattoirs. During the teaching period, these organs are collected every week by Faculty personnel. Similar material is employed for the practical part of the exam in food inspection.

- A requirement for all students to attend one of a list of approved abattoirs for a minimum of 1 day. There is support from the veterinarians of the District Veterinary Service who provide the OVS duties at the plants and instruct the students.

- For the practical teaching of seafood inspection groups of students are assisted by an expert and they learn to identify of the more important species of fish and seafood marketed in Italy, in particular with regard to food safety (risk of Histamine, of zoonotic parasites) and commercial fraud.

- Students attend the laboratories of Food Inspection of the Faculty on the following topics: food microbiology, food borne diseases, food technology, food chemistry, collective food-service hygiene, food safety legislation, under the supervision of teachers and researchers of Food Inspection

- For the practical teaching of food hygiene in elective courses, 10 to 15 visits of half a day are organized and since the number of students in elective courses is small (5 to 15), all students take part in the visit under the supervision of the teacher and, in some cases, of an assistant and are usually organized on a weekly base.

- Other aspects of VPH, in particular zoonoses, toxicological and chemical residue and microbial resistance are scattered among the syllabus of different disciplines (epidemiology, microbiology, virology, parasitology, toxicology, pharmacology and food hygiene

Starting from 2009, each student will have a compulsory practical activity dealing with food microbiology (5 hours) and comprehension of international scientific literature on meat composition and quality, food technology, meat products, food additives and contaminants (20 hours).

4.5.2 Comments

Some 10 years ago the Department of Veterinary Services and Technology for Food Safety was formed as a result of merger of several Institutes within the Faculty. It is clear that there has been better integration of the teaching of different sections of the undergraduate course relevant to food hygiene and inspection over the last few years.

Teaching takes place in the Faculty and comprises lectures and practical exercises in year 3 and year 4 but the year 4 teaching includes a lot of practical work with little spare time. In the last 2 years enforcement of attendance at food hygiene and inspection classes has increased the pass rate in the examinations and said to have given a better perception of the relevance of the subject area to the students.

With various improvements to the teaching over the last 3 -5 years, students who will graduate from 2009 are considered to have a competence at basic level in food hygiene and inspection. The 10% or so who chose the food hygiene track will have a higher level of competence in this area but none will be considered to have achieved Official Veterinarian status. There is however a requirement for additional training

should they wish to join the State Veterinary Service as an Official Veterinary Surgeon.

The training at the abattoir visited, where 3 students were attending, was of a very high standard and appears to be the norm at all meat plants. The minimum requirement to attend only one plant does restrict exposure of the student to one species.

The staff makes best use of available facilities but they are dated and many of the rooms of a size that gives problems for practical classes.

4.5.3 Suggestions

To motivate students for the areas of Food Hygiene and VPH, the Visitation Team highly supports the existence of an "Introduction to Veterinary Public Health" early in the course.

While there has been improvement in integration of the teaching, an opportunity exists to further improve the bringing together of expertise for the benefit of undergraduate teaching. Updating of food hygiene and food safety teaching and training with a new integrated "farm to table" approach is necessary. This would include Good Farming Practice as well as Good Hygiene Practice and HACCP which does not appear to be dealt with adequately in the course at present. This must include linking with the production animal teaching to adequately deal with food chain information as required by current EU food hygiene rules (see also 4.3.3).

Until this has been achieved, there is the suggestion of a **category 2 deficiency**.

4.6 Electives, optional disciplines and other subjects

4.6.1 Findings

In the 5th year each student has to enroll in one elective of 240 hrs.

The Faculty offers a wide range of electives which must be taught when a minimum of five students has enrolled. At the time of the visit 12 electives were active with a high variability in respect to clinical work.

According to the SER, tables 4.3a to 4.3l, the electives "From Laboratory to consulting room", "Herd Health Management" and "Clinical Pathology" encompass no clinical work at all. More than 100 hrs of clinical work is included in tracks "Small Animal Clinical Medicine and Laboratory Diagnostics A and B", "Bovine and Small Ruminant Medicine", "Equine Medicine Surgery and Reproduction", "Small Animal Anesthesiology", "Small Animal Reproduction" and "Diagnostic Imaging". Eight to 81 hours of clinical work is included in the tracks "Wildlife Health Management" and "Applied Behavioral Sciences".

4.6.2 Comments and suggestions

The motivation of the Faculty to offer a high number of tracks in order to meet individual students demand must be acknowledged.

However, the further improvement of the hands-on clinical training of all students should be a goal of higher priority.

It is therefore suggested to restructure the tracking system in a way to offer only those tracks as electives, which encompass at least more than 100 hours of clinical training. This would automatically reduce the number of elective tracks, all other tracks could be offered as optionals.

4.7 Ratios chapter 4

The following ratios as calculated for the parameters covered by chapter 4 were re-calculated by the Faculty shortly before and during the visit and are different from the figures given in the SER or not included.

No	Direction	Type	Fraction	Denominator Milan	ECOVE
R 6:	LL	Theoretical training / Supervised practical training	2648 / 1796	**0.67**	0.551
R 7:	UL	Clinical Work / Laboratory and desk based work + non-clinical animal work	574 / 1222	**2.13**	2.200
R 8:	Ra	Self directed learning / Teaching load	22 / 3689	**167.7**	0.559-6.092
R 9:	Ra	Total no. curriculum-hours / Food Hygiene / Public Health / Total no. hours vet. Curriculum	276 / 3730	**13.5**	to be established
R 10:	Ra	Total no. curriculum hours / Food Hygiene / Public Health / Hours obligatory extramural work in Veterinary inspection	255 / 8	**0.03**	to be established

UL = upper level, LL = lower level, Ra = Ratio

As is stated in the SOPs, these ratios must not be seen dogmatic but rather as an indicator. However, clearly an extramural training in Food Hygiene and Public Health must be established in a meaningful way.

5. TEACHING QUALITY and EVALUATION

5.1 Teaching methodology

5.1.1 Findings

Teaching is mainly based on formal frontal lectures and practical lectures mostly in laboratories, clinics and dissection rooms.

Practical lectures demand the rotation of groups of students in the mandatory courses, the subdivision being determined by the area of the laboratories (sometimes quite small) and the number of students. In practical lectures students are taught and assisted by one or two members of the teaching staff with the occasional help of doctorate students or post-doctorates.

This traditional and formal training goes on for the first four years of the course.

The ninth semester (first semester 5th year) is totally devoted to Clinical Rotation and Elective Subjects. Training in electives is mainly practical with "hands-on the job" for the whole semester for small groups of students, from 7 to 20. Teaching is provided by the regular teaching staff with help from the doctorate students and post-doctorates.

Finally, in the tenth semester, students undertake the pre-professional training in four main areas each with various sub-areas. They will follow mainly practical activity during a month in one of the subareas they choose. In each departmental section the number of students involved in the pre-professional training is about two or three at a time. Teaching again is provided by the regular teaching staff with help from the doctorate students and postdocs.

Concerning clinical teaching on large and small animals clearly all teams are highly devoted and motivated. Staff at the LATH seeks for an expansion of the case load, there is a lack of trained staff (e.g.: anesthesiologist and technicians) which is up to now in part compensated by assigning students.

Students may work from a wide range of teaching material (see also Chapter 8 Library); they usually purchase books (or lend them from the library) and power-point presentations from all courses are available to them online on the Faculty web site. One computer in the library is especially reserved to download teaching material from the Faculty. Course notes from 38 courses are available from the Faculty or the library. The students' opinion is that the teaching material they have access to is sufficient.

We have not come across any course clearly defined as problem -orientated learning. However, clinical work may include this approach.

The **evaluation of teaching** is mainly based on the students' opinion revealed both by the questionnaires and by representatives of the students. The questionnaire is composed of a series of 25 to 50 questions, organised in 5 topics including:

- The quality and adequacy of facilities
- The teaching quality, clarity and attitude towards students
- The comprehensiveness of subjects taught
- Overall satisfaction

The evaluation of the questionnaire (which is carried out by a private company) leads to a scoring of professors on a scale from 1 to 10. Professors receiving a poor score

(defined as a score below 6) are invited to meet the Dean, who will "identify problems and plan corrections". The questionnaires are filled out anonymously in a class at the end of the semester on a voluntary basis.

For comments on the theoretical to practical ratio see Chapter 4 (curriculum) and Chapter 7 "Animals and Teaching Material of Animal Origin". In light of the new campus in Lodi, efforts are being made and facilities are available to place more emphasis on practical work.

5.1.2 Comments and suggestions

The number of frontal lectures is rather high, especially for the first four years, until the two semesters of the fifth year of practical teaching and training are reached.

Having postponed the pre-professional training after the fifth year, the new curriculum "gained" a semester for more formal teaching. The teaching space gained by the new curriculum should be used to relieve the number of frontal lectures with a selection of subjects to be covered.

The questionnaires are not compulsory and carried out in a class at the end of the semester. Talking to students, they mentioned that not all of them may be present in that session or may have not taken part in the lectures at all, so it may not be a good representative of the course.

Teachers on the other hand would like the questionnaire to be solid and to be taken into account when applying for a higher position. At present the academic record as evidenced by publications is the major issue taken into account.

5.2 Examinations

5.2.1. Findings

In total, the students have to accomplish 30 examinations in 10 of which there is a written part, the remaining ones are completely held orally. In some examination tests there are concurrent parts consequential to different modules that compose the course. Examinations are held in three periods in January-February (at the end of first semester), in June-July (at the end of second semester) and in September-October. Special sessions are also held in April, but only in the afternoon to reduce interference with concurrent courses. Furthermore, the so called "off-course" students may sustain examinations every month. There are no limits a student can retake an exam.

The University rules state that the examining committees must be composed of the teacher officially responsible for the course and a second examiner, which may be another teacher from the same Faculty or a person recognised by TCCDVM (Teaching Coordination Commission for the Degree Course in Veterinary Medicine).

For enrolling to the subsequent year, the student generally does not have to have passed the examinations of the preceding year. The exception to this is the admission to year 5, which requires the prior completion of all examinations of the first 3 years. Furthermore, in course of the 5th years, the student will successively have to

have completed a series of compulsory propedeutics to be admitted to subsequent courses.

5.2.2 Comments and suggestions

The team had difficulties in identifying the examination structure. Furthermore, during the course of the week the impression was gained that the examination system at the Faculty is one of the main reasons for the high number of repeaters. The lack of a structured examination scheme and the complete freedom of "off course" students to take exams when and how often as they desire, leads to a congestion of the course.

Having seen some figures for examinations held between April 2008 and September 2009 for Infectious Diseases of Domestic Animals when 427 students were assessed in Part I and 252 in Part II, we consider this a huge extra load on the staff which may well conflict with teaching commitments.

The students of Milan Veterinary Faculty feel that they have a high work load, especially in the 1st and 4th year of the course and the preparation required for the corresponding exams exceeds the time available to them. In consequence, they may only take some of the examinations at the end of one year and then having repeated the year in the Faculty, take the remaining examinations.

There should be an external review of the entire examination procedure, as the problems appear multifactorial.

Until this has been achieved with some resulting improvements there is the suggestion of a **category 2 deficiency**

6. PHYSICAL FACILITIES and EQUIPMENT

6.1 General aspects

6.1.1 Findings

The buildings on the Milan Campus are historical and generally in a poor condition. Over recent years obviously maintenance of the buildings was restricted to the absolute minimum, since it is expected that the whole Faculty will be moved to the Lodi Campus until 2014.

The Large Animal Teaching Hospital (LATH) at the Lodi Campus was opened in 2005 with new buildings which are in excellent condition.

A dormitory for students staying over night at the LATH is virtually finished and the team was informed that the first students had already used the facilities. Size, condition and equipment of the dormitory appear appropriate as the team was informed by the students.

The construction of the experimental farm in Lodi was finished in 2009 and till now is not operational, except of a barn for piglets. The experimental farm is state of the art

and will include facilities for housing swine, poultry, rabbits and cattle (beef and dairy). The experimental farm is in close proximity (about 100 – 200 m) to the LATH.

6.1.2 Comments and suggestions

The Faculty must be congratulated for the new facilities at the Lodi Campus. However, as outlaid below, some further precautions must be taken to meet all requirements in respect to hygiene and biosecurity to make an optimal use of the experimental farm.

All efforts must be made to safeguard the move of the Milan Campus to the Lodi site until 2014.

6.2 Basic science facilities

6.2.1 Findings

Premises for teaching on the Milan Campus are available in a sufficient number but vary substantially in conditions. Amphitheatres are generally large enough to accommodate students in lectures. Depending on the purpose of the teaching room, technical equipment (LCD projectors, microscopes, etc) is sufficiently available and up to date. The technical equipment of teaching laboratories is generally up to date and well maintained.

The rooms for anatomical dissection and microscopy practical classes are located in the basement, having a low ceiling and being badly provided with natural light. They accommodate about 20 students at a time. In many other practical lectures on basic subjects, teachers divide students in very small groups, due to the exiguity of the laboratories, having to repeat the lecture five times or more.

In some areas where basic sciences are taught a safety hazard results from in part narrow and congested hallways and laboratories (i.e. Parasitology, Microbiology, Food Hygiene)

The Faculty at present operates 2 necropsy halls, one at the Milan campus and the other one at the Lodi campus.

The necropsy room at the Milan campus is spacious enough to hold a group of around 20 students, with four dissection tables. It is equipped with good refrigeration systems, but there are no adequate rooms for students to change protection cloth and to wash hands.

The necropsy hall at the LATH is new and in excellent condition. However, it might soon become too small if it stays the only one after the Faculty has moved to the Lodi site.

The disposal of cadavers and organs is by incineration via a specialized external waste disposal company that comes on demand.

6.2.2 Comments and suggestions

Although amphitheatres seem to be enough to accommodate students in lectures, there is a lack of adequate spaces for practical training in many mandatory subjects.

The need to repeat practical lessons many times for the various groups could be seen as a waste of human resources and discourage the interest of introducing more practical subjects in some courses.

The in part congested hallways and laboratories present a safety hazard and the situation should be improved as soon as possible. In particular an interim solution should be envisaged to improve the hygienic conditions at the Milan necropsy room.

6.3 Clinical facilities

6.3.1 Small animal facilities

6.3.1.1 Findings

The small animal facilities at the Milan Campus comprise Small Animal (SA) Internal Medicine, SA Surgery and Diagnostic Imaging (Radiology) and SA Reproduction.

Dogs and cats have separate entrance/waiting rooms and once admitted the number assigned stays with the patient. The electronic patient recording system allows access to each patient's record at any working station of the clinic.

The clinic is run as an "Ambulatory clinic", i.e. there is virtually no hospitalization of patients and there are no provisions to hospitalize patients. Recovery areas/cages are used for the rare situation that a patient is kept over night.

In general the buildings don't meet modern standards any more. However, they are kept in a suitable working condition.

There are enough examination rooms which are big enough to allow students participate in patient examinations. There is an operation theater for reproductive surgery and another one, equipped with 2 surgery tables, for general surgery. For the last one great care has to be taken to maintain the necessary hygienic conditions as there is a common floor giving access to the operation theater and the endoscopy room.

The room for general surgery is actively ventilated. Nevertheless members of the team smelled "anesthetic gases", pointing to an unacceptable leaking of isoflurane. However, the team was informed that MAK concentrations were never exceeded.

Concerning radiology and diagnostic imaging, all students and staff are properly informed on safety regulations, which are strictly observed. The equipment available meets modern standards (e.g. digital radiography, CT, ultrasound).

However, clearly missing is an intensive care unit, and there is no central pharmacy.

The clinical laboratory is run by the unit for SA Internal Medicine; it is well equipped and provides services for the whole small animal clinic and also for the equine unit.

Some clinical services (chemotherapy, MRI) are provided at the Lodi Campus in the recently established facilities.

6.3.1.2 Comments and suggestions

All buildings and consequently also the rooms used for clinical services show “wear and tear”. However, they are kept in an acceptable working condition and in view of the envisaged move of the small animal clinic to the Lodi campus until 2014, no reconstructions apart from keeping the premises in good working condition seem urgently necessary. A thorough check of the anesthetic apparatus is suggested.

The Faculty might also consider to establish a central pharmacy.

Comments and suggestions concerning the lack of an intensive care unit and hospitalization of patients have been made in chapter 4.4.

6.3.2 Large animal facilities

6.3.2.1 Findings

The LATH in Lodi and experimental farm are located 38 km outside of Milan in a rural area. There is a limited number of minibuses and a bus with 39 places. However, transport of students between the Milan and Lodi site is organized on private basis, either with private cars or public transport.

In general the facilities and equipment of the LATH are principally very suitable to let the LATH become a nation wide recognized large animal (equine, ruminant, swine) clinic.

The LATH is divided into an equine and ruminant section; only a small part is devoted to pigs. In general health and safety items are posted in laboratories and clinics according to Italian law.

The administrative unit together with the diagnostic laboratories is situated on the second floor above the equine surgical theaters.

The equine section (internal medicine and surgery) has well equipped examination rooms and surgery facilities and a treadmill. Regular stables and a number of isolation stables are available. Up to now, the equine swimming pool and the farrier’s room are under construction.

The bovine section is responsible for all clinical items related to internal medicine and surgery. There are appropriate and well equipped examination rooms (including stocks for standing surgical procedures), stables for calves and adult cattle and facilities for claw trimming and a tilting table.

However, clearly identified isolation facilities equipped with sluices are not available for cattle, small ruminants and pigs.

The X-ray and MRI-station meet most modern standards and provide imaging support for both the equine and bovine sections.

There are no written protocols to ensure biosecurity, particularly in respect to transmissible diseases. Food animals are not tested before admission for epidemic diseases but assigned to different stables according to the information provided by the farmer. Presently IBR-free cattle are housed in individual pens in a separate barn. IBR-positive cattle are kept together in a tie stall with animal to animal contact being possible.

The unit for large animal reproduction handles both, equine and bovine patients and has an insemination and examinations rooms together with excellently equipped laboratories. Several barns for cattle and swine are present, however, there are no isolation facilities.

There is an up to date facility for large animal necropsy (2 necropsy rooms, a refrigerated room, laboratories, administrative units, lecture room).

6.3.2.2 Comments and suggestions

The new large animal facilities including the necropsy building are well constructed and equipped according to the standards of an up to date large animal clinic. However, certain aspects must not have been considered properly.

In the bovine section the separation of IBR free and non-IBR free cattle needs a final decision since this method of working is hard to justify in the future (risk of unwanted contamination of client owned animals); this is not only for IBR but also other contagious infectious diseases

In this respect the LATH should develop a strategy for aggressive prevention of the transmission of infectious diseases in the food animal clinic to intensify the attractiveness of the clinic for field veterinarians and dairy farmer (this will also help to teach biosecurity), a precondition to keep the clinic alive.

One possibility to approach this problem might be to remodel the tie stall for cattle to small individual pens, where any animal contact is impossible.

The close neighborhood of the experimental farm and the LATH in Lodi bears a high risk for the transmission of infectious diseases from the farm to the hospital and vice versa. Thus respective precautions must be taken and maintained.

Although some ambulatory work is performed occasionally, no structured mobile ambulatory clinic is present allowing the team to judge on its feasibility.

As long as there are no proper isolation facilities in the food animal unit there is the suggestion of a **category 1 deficiency.**

6.4 Experimental farm

The team was impressed by the new facilities of the experimental which will mainly serve teaching in animal production (see chapter 4.1) and propedeutics. The farm is expected to start full operation at the end of 2009 and hence the team was not able to develop an opinion on the actual housing and working conditions. However, in respect to the facilities available, there seem to be no point to worry about.

7. ANIMALS and TEACHING MATERIALS of ANIMAL ORIGIN

7.1 Findings

The units of Anatomy and of Pathology collect and obtain animal materials from different origins including clinics, private practitioners, slaughterhouses and private farms.

The unit of Anatomy has a limited amount of real bones and plastination specimens. A list of the number and type of cadavers and viscera used for practical anatomical training is provide in table 7.1, SER.

An acceptable number of necropsies was performed in the pathological unit on food and companion animals over the last three years, with a limited amount of equidae (table 7.2, SER). All ratios (R18 – R20) presently set by ECOVE are met (see below).

Up to now the Lodi experimental farm was not equipped with food animals to be used for teaching in Animal Production. Two herds are available (dairy cattle, 25 Km from Milan and milking goats, 100 km from Milan) which are occasionally used for guided students visits during preclinical studies. Specimens from the slaughterhouse, a limited amount of visits to the slaughterhouse, and imports of fresh seafood are used for practical education of food hygiene and public health.

A limited amount of equidae (5) is kept in Lodi for propedeutical purposes. Private owned companion animals (student, academic staff) are occasionally used for demonstration.

The numbers of animal referred to the clinics and visited occasionally outside the faculty are listed in table 7.4 and 7.6, SER, respectively.

On request of the visiting team some of the ratios (R11 – R20) were adjusted to the actual situation; the denominators are as follows:

No	Direction	Type	Fraction	Denominator Milan	Denominator ECOVE
R 11:	LL	no. of students graduating annually / no. of food-producing animals seen at the Faculty	147.6 / 355.7	**2.41**	3.084
R 12:	LL	no. of students graduating annually / no. of individual food-animal consultations outside the Faculty	147.6 / 470.6	**3.19**	13.416
R 13:	LL	no. of students graduating annually / number of herd health visits	147.6 / 2	**0.01**	0.344
R 14:	LL	no. of students graduating annually / no. of equine cases	147.6 / 256.7	**1.74**	2.529
R 15:	LL	no. of students graduating annually / no. of poultry/rabbit cases	147.6 / 0	**0**	0.640
R 16:	LL	no. of students graduating annually / no. of companion animals seen at Faculty	147.6 / 6395	**43.33**	56.619
R 17:	LL	no. of students graduating annually / Poultry (flocks)/rabbits (production units); seen	147.6 / 1	**0.007**	0.110
R 18:	LL	no. of students graduating annually / no. necropsies food producing animals + equines	147.6 / 136.6	**0.92**	0.823
R 19:	LL	no. of students graduating annually / no. necropsies poultry/rabbits	147.6 / 742.3	**5.03**	0.370
R 20:	LL	no. of students graduating annually / no. necropsies companion animals	147.6 / 272.7	**1.85**	1.588

LL= lower level

7.2 Comments and suggestions

The overall number of necropsies of food producing animals including equines, companion animals, poultry and rabbits is good.

Although the location in Milan has an active role in the treatment of referred small animal patients whereby the denominator reached almost meets the lower level (R16), there is a lack of an emergency service in all periods of the year. The closing of the clinic during different periods of the year due to holidays is hardly defendable.

This situation has to be corrected in order to provide a good clinical education for all students (see chapter 4.4.3) A permanent group of clinic owned dogs can be used for educational purposes (including first contact, propaedeutics, eventual blood donors etc.) whereby students can be involved for the essential care of these dogs (walking, feeding, cleaning etc.).

Lots of efforts have been made at the new Lodi large animal hospital for attracting food animals (specially dairy cattle but no pigs; R1 just below denominator), there is hardly any contact with food producing animals outside the faculty with the number of visits for herd health being very low (R12, 13). Also the number and type of equine cases should be improved (see 4.4.3.2)The contact of students with poultry and rabbit clinical cases or flocks and production units of these animals is virtually non existing (R15, 17).

This has to be remediated using the small animal clinic facilities for the clinical cases on one hand and organizing guided visits to the experimental farm in Lodi but also to commercial units inside the region.

From these observations several suggestions of a category 1 deficiency have been delineated as outlined in chapters 4.4.2.3 and 4.4.3.2.

8. LIBRARY and EDUCATIONAL RESOURCES

8.1 Findings

The Library of the Faculty of Veterinary Medicine in Milano was founded in 1808 and is designated to the Faculty. It occupies 1,250 square meters over four floors, with one, in the basement, used for storage, and has three reading rooms for users. The library's bibliographic property includes a total of approximately 63,000 volumes, including antique texts, reviews, thesises and keeps the historical archives of the Scuola Superiore di Medicina Veterinaria in Milano.

The library is open on weekdays from 8.45-18.30 hrs but closed during weekends and for 2 weeks in August. There are 8 full-time employees and 0.66 part time employees.

There are 123 student reading places with access to 196 Journals and around 6,000 electronic journals with the possibility for online literature search. A computer room is part of the library composed of two adjoining rooms open to the users, one equipped with a video-projector and utilized for courses on information literacy. All 21 computers are online and are connected to 2 printers.

The users can consult audio-visual and didactic materials with access to information on the web and to all university bibliographic electronic resources by Digital library pages or by meta search engine MetaLib. University OPAC (Online Public Access Catalogue). The University Data Base Service allows access to 156 data bases of which nearly 20 are on biomedical subjects.

Students may, on enquiry, access the subsidiary department libraries. All bibliographic documents which are not held in the central library are also recorded in the Online Public Access Catalogue of the University.

Students may enter the reference rooms to consult books and journals and, at the moment, dedicate time to personal study with some reading places reserved for periodical reading. Except for the older text books, non-book material, and out-of-print publications, which are shelved by size, all reference material is open-access stacked. Users read electronic and non-book material in the computer room.

Students may borrow lendable books at the charging desk, reserve an a book or to extend a loan by OPAC authentication on the web. Users may use two self-service photocopying machines and make photocopies of journal articles free of charge if a professor has authorized them.

For some courses, students may even have access to teaching material, which was discussed in their individual class (e.g. histology slides). Although this is dependant upon the engagement/dedication of individual professors, students benefit greatly from this and hence this approach ought to be further supported

8.2 Comments and suggestions

Library facilities can be considered as excellent; the team was informed that the opening hours meet the needs of the students.

9. ADMISSION and ENROLMENT

9.1 Findings

Admission to the Milan Veterinary Faculty is based on two prerequisites. First, students have to have completed standard compulsory educational courses established by Italian laws (up to high school level). Secondly, they have to take a national bar-exam, prepared by the MIUR and common to all Faculties of Veterinary Medicine in Italy. Nationwide, all applicants sit this bar-exam on the same day, which is composed of 80 multiple choice questions (MCQs) covering the following topics: general knowledge (33 MCQs, 41.25 %), biology (21 MCQs, 26.25 %), chemistry (13 MCQs, 16.25 %) and mathematics or physics (13 MCQs, 16.25 %). However, prior to this bar-exam, the applicant already has to have decided on which university he/she would choose to enrol. Within two weeks, the students are then ranked according to their performance on this test and the first 169 (162 + 7 from non EU Countries) applicants are accepted by the Milan Faculty under the regulations in effect since academic year 2009/2010 (decision made by the MIUR in July 2009).

The number of students admitted is proposed by the faculty but must be approved by MIUR. The decision is made by a working group composed by members of the MIUR, the Ministry of Public Health, Italian professional board and by the Deans of the Veterinary Schools. The Ministry also takes into account the need of veterinari-

ans in different regions of Italy. In the year of 2007/8 and 2009/10 this procedure has led to a reduction of the number of students enrolled in the first year.

9.2 Comments and suggestions

Apart from standard high school degree, a good result in the national bar-exam is the only requirement for an Italian student to be admitted to a Veterinary degree course. Veterinary students from Milan have confirmed that this leads to the admission of students with a heterogeneous level of knowledge in sciences. Among other matters this may account for the high number of repeaters in the first preclinical years of the course.

However, as there seems to be no advice for high school pupils to guide them into university, it only seems fair to give all pupils the opportunity to take the bar exam and consequentially access to veterinary education.

We have no reason to believe that there are any inequalities regarding gender, disabilities or financial background regarding admission to the course. Even though students with children are rare, there are cribs for the children to be supervised during the courses.

10. ACADEMIC and SUPPORT STAFF

10.1 Findings

At the time of the visit the academic staff concerning the whole Faculty was as follows:

- total academic staff FTE 124.2
- academic staff veterinary surgeons (VS) FTE 97.4
- total support staff FTE 114

The academic staff is divided into full professors, associated professors and researchers, all permanent positions according to Italian law. The academic staff is supported for the educational task by the PhD students (% involvement in education varying from 0 to over 70 %). The support staff includes the administration and technical staff.

The main indicators R1 to R5 have been provide in the SER in table 10.3. On the request of the visiting team, the ratios have been adjusted according to the present situation:

No	Direction	Type	Fraction	Denominator Milan	Denominator ECOVE
R 1:	UL	no. total academic FTE in veterinary training / no. undergraduate veterinary students	124.2 / 1116	**8.98**	8.713
R 3:	UL	no. total VS FTE in veterinary training / no. undergraduate veterinary students	97.4 / 1116	**11.45**	10.400
R 4:	UL	no. total VS FTE in veterinary training / no. students graduating annually	97.4 / 147.6	**1.52**	2.597
R 5:	Ra	no. total FTE academic staff in veterinary training / no. total FTE support staff in veterinary training	124.2 / 114	**0.918**	0.631-2.268

UL = Upper level, Ra = range

10.2 Comments and suggestions

For the Milan Faculty and possibly also other Italian veterinary faculties it is difficult to take the denominators of R1 and R3 as established by ECOVE as reference points as they also include the off course students who, as the team was informed during the visit, do not participate in teaching activities. This situation is reflected by R4 (students graduating annually) which is well below the upper level established so far. Thus the indication that the teaching staff of the Faculty should be increased as R1 is somewhat above the denominator established by ECOVE (8.713) is not very strong.

However, as the clinics are expected to develop further by including and extending an emergency service in small and large animals plus continuous services over the year it might become necessary to shift more teaching capacity in this area. This evolution will also require an extra input of technical staff since the supportive staff for pure clinical activities is at present relatively low.

11. CONTINUING EDUCATION

11.1 Findings

The introduction in 2004 of the compulsory Veterinary Continuing Medical Education (VCME) has substantially increased the demand in continuing education whereby the Faculty got involved in the organization of such courses.

It appears that the Faculty organizes itself more than 2100 hours of courses with about 1200 participants. However, in order to organize such a course, apparently many administrative hurdles have to be overcome. This situation favors external bo-

dies which had organized many courses during the last 3 years. However, up to now the number of officially recognized VCME courses is low.

Participants are belonging to all veterinary categories. Subjects vary, including both, small animal and large animal medicine.

Distance learning is offered in three courses approved by Lombardy Region. The participating veterinarians have to pay for it.

11.2 Comments

As in many other places teaching activities provided within continuing education are not acknowledged as an official task of the academic staff, which limits the attractiveness of this extramural activity, particularly as there seem to be no clear regulations on a honorarium. The administrative hurdles within the university do not support engagement of the academic staff in providing continuous education.

Relationships between private societies for veterinary education and the Faculty used to be difficult in the past. Today, the Faculty and the societies are both in need of a good cooperation to implement the VCME.

11.3 Suggestions

Consider teaching in continuous education as an official teaching obligation when the courses offered are also electives/optionals for undergraduate and postgraduate students.

Reduce the administrative hurdles for the academic staff when they wish to provide continuing education.

Allow academic staff to accept a honorarium when providing continuous education.

Creating a committee, including private societies and voluntary Faculty teachers to define the topics for the next year.

12. POSTGRADUATE EDUCATION

12.1 Findings

The Faculty offers both, postgraduate education on the academic and professional track.

12.1.1 Professional track

The clinical speciality training consists of

a) Residency programmes:

Five residency programmes have been recognised by the corresponding European Veterinary Speciality Colleges (3 year full time program with a grant and 5 year part time program, without grant).

The objective of these residencies programmes is to prepare the candidates for the exams to obtain the diploma of the respective college. Up to now, college diplomas are not recognised on the administrative level for academic admission or progression, though they represent a high degree of specialization in the respective field of expertise.

b) National Specialization Schools

There are nine national specialization schools covering various subjects, which are covered during a three year period. These courses are mandatory for veterinarians wishing to be admitted in state institutions such as diagnostic laboratories, food inspection, quality control or livestock sanitary control entities.

The first classified in the admissions exam are admitted as full time students and receive a grant. The remaining will be part time students without a grant. From 2004 to 2008, 300 postgraduates have obtained their specialization degree in the Faculty

12.1.2 Academic track.

Education is mainly along the following lines:

- Postgraduate research education programmes (PhD programs)
- Post doctorates (Postdocs)

Two doctorate courses (PhD-programmes) are offered:

1) veterinary sciences for animal health and food safety and

2) health and animal husbandry: science, technology and biotechnologies

Candidates have to go through an exam to access the program and once approved benefit from a grant for three years. Grants are supported by the government and considered sufficient. Candidates without a grant may be admitted on a part time basis. Students may spend a maximum of 18 months in a foreign institution to develop their project. At the end of the three years a dissertation must be submitted that is discussed in front of an official commission.

There are no minimum requirements in respect to publishing in international journals prior to be granted the title of a doctor (PhD).

The faculty offers only few positions for postdocs. Grants for post-doctoral research are awarded based on the quality of the projects submitted to the scientific commission of the Faculty; evaluation is after 2 years when application for renewal for

another 2 year period is possible. For administrative reasons the applicant must be a permanent member of the scientific staff, regardless whether or not the project was developed by the postdoc.

Postdocs may supervise young doctorates and collaborate in teaching, especially in laboratory work, such as elective subjects, pre-professional training and laureate theses.

12.2 Comments and suggestions

The non recognition of Diplomats of European or American Colleges in the admission or progression in the academic career may turn out to become a severe drawback to the Faculty and veterinary education. Diplomats are highly prepared specialists and have to continue to be highly involved in their field of expertise to maintain their membership in the respective college. In many veterinary establishments teaching of subspecialties, e.g. Ophthalmology, Dermatology etc, is assigned to Diplomats who are paid according to their specialization.

The faculty is strongly urged to press for changing this situation, though it might be a long way to go.

Traditionally specialization has been obtained through the National Specialization Schools. The Faculty is involved in this program and maintains good relations with former graduates, working in the various fields of professional activity, obtaining the necessary feedback.

Presently there are no minimum requirements in respect to publishing in international journals within the Doctorate (PhD) programs offered by the Faculty. The Faculty might consider changing this situation by requesting at least one paper.

Ways should be found to allow post-doctoral researchers to submit grant applications for projects developed by themselves.

13. RESEARCH

13.1 Findings

The Faculty is highly involved in research which is demonstrated by a list of international refereed publications (2005-2009, between 110 and 145 papers per year) produced by the different departments or units.

There is a structured system of Doctoral Schools for the PhD students and Postdocs.

Students are involved in the research by making the compulsory graduation thesis, especially those who choose for an experimental thesis (the alternative is the review thesis). The students are introduced to the scientific methodology under the guidance of a supervisor and experience the judgment of a reviewer. The final exam of the thesis is screened by a committee of 11 members of the faculty. Six tutors help the students in their choice whereby a monthly program of seminars is established (the

so-called three slide project). Occasionally a doctoral thesis is the basis to produce an international paper.

13.2 Comments and suggestions

The scientific output of the faculty is high which proves the existence of the essential relation between the student's education and research. The doctoral schools are fully operational supporting the PhD students and post docs.

It is a positive point that a majority of the students are involved and assisted in the research area for their graduation thesis whereby a first exploration of scientific research is established.

However, the pressure of the graduation thesis of the student can interfere with the regular mandatory program, especially when students start rather late with their thesis. Six tutors proving information and guidance of the research system for over 100 students is a rather low number of persons: this could be increased in order to provide enough information towards the students.

EXECUTIVE SUMMARY

1./ 2. Objectives, Strategy and Organization

Objectives of the Faculty are well defined, means to meet them have been established.

The Faculty, embedded in the typical structure of a university, has only restricted autonomy. It consists of 4 departments, each of them comprising several (4 – 10) units.

The Department of Veterinary Clinical Sciences has two locations; the Small Animal Clinic operates at the old (1927) facilities of the Milan campus, while the Large Animal Teaching Hospital (LATH) is located at the new (2005) facilities of the Lodi campus.

The present structure with many units reflects the situation of former teaching responsibilities and does not promote the discussion and coordination of teaching between departments in order to cope with the requirements of the 1999 and particular 2009 curriculum; actions should be taken to improve the situation, at the latest with the move of the Milan campus to the Lodi site in 2014.

3. Finances

There is never enough financial support concerning operational expenditure, however, it seems to be high enough to maintain adequate working conditions.

There is a distinct and clear lack of funds made available for the important and urgently necessary renovation of the buildings at the Milan campus. However, if the plans to move the whole Faculty until 2014 to the Lodi site will be executed, no special fiscal support beyond maintenance and guaranteeing functionality seem to be necessary to salvage the Milan campus.

4. Curriculum

4.1. General

Presently the Faculty implements the 1999 and the 2009 curriculum, the latter one being based on a credit system. The basis of this report is the 1999 curriculum.

The curriculum covers all subjects listed in Directive 2005/36/EU.

Some specific comments are as follows:

- The mandatory tracking system should only account for tracks which are at the core of veterinary education; any other track might be offered as optional.

- The course of studies should be accompanied by an examination system which will support the students to pass their exams on time, ensuring the 5-year study time.
- Extramural training in veterinary practice and public health institutions should be implemented.

4.2 Basic subjects and sciences

In Pathological anatomy more time should be allowed for necropsies.

The number of animals used in anatomical dissections should be increased, particularly in respect to companion animals.

As long as there is a lack of companion animal carcasses in anatomical dissections there is the suggestion of a **category 2 deficiency**.

4.3 Animal production

Exposure to farm animals should occur earlier during the curriculum, similarly more practical exercises in teaching Agronomy are needed.

More integrated teaching on herd-health management should be provided, also covering the HACCP- and “Farm to Table” concept. The Faculty is encouraged to contract production units/farms where herd-health management can be taught and to act as a centre for expertise to become more attractive to private farmers.

4.4 Clinical sciences

4.4.1 General

Exposure of students to instructions on the safe handling of animals and the examination of large and small animals should be intensified and placed earlier in the curriculum.

Hands-on clinical training should be intensified.

4.4.2 Small animal clinical sciences

Students in the small animal clinic are well tutored by a highly motivated staff. However, as there is no intensive care unit and as patients are generally not hospitalised, making a 24hrs emergency service unnecessary, essential segments of the training in small animal medicine are missing.

Until this situation has changed, there is the suggestion of a **category 1 deficiency**.

4.4.3 Large animal clinical sciences

In spite of the excellent facilities at the Lodi campus, LATH; clinical training on pigs is virtually non existing, the number of small- and large-ruminant patients is small.

This situation is not compensated by running a Mobile Clinic, herd health visits or provision of an adequate number of teaching animals.

This situation results in the suggestion of two **category 1 deficiencies**::

a) Lack of a mobile clinic.

b) Lack of propedeutical animals and shortage in food animal patients in particular in respect to swine medicine (patients/patient material).

4.5 Food hygiene and technology and veterinary public health

In spite of the considerable improvements made in the past, updating of Food Hygiene and the Food Safety, teaching with a new integrated “Farm to Table” approach is necessary. This would include Good Farming Practice as well as Good Hygiene Practice.

Until this has been achieved, there is the suggestion of a **category 2 deficiency**.

4.6 Electives, optional disciplines and other subjects

The motivation of the Faculty to offer a high number of tracks in order to meet individual students demand must be acknowledged. However, to further improve the “hands-on clinical training” of all students should be a goal of higher priority.

It is therefore suggested to restructure the tracking system by offering only those tracks as electives which encompass at least more than 100 hrs of hands-on clinical training.

5 Teaching Quality and Evaluation, Examination

Teaching follows the classical way, also making use of ET methods. It is to be appreciated that the number of frontal lectures is reduced in the 2009 curriculum.

Teacher evaluation by students is on a regular basis, however, it should be secured that all students participate.

The examination system does not limit the retakes students can take. This leads to a high number of “off course” students resulting in a congestion along the routes examinations have to be taken.

The team strongly suggested that there should be an external review of the whole examination system as the problems seem to be multifactorial.

Until this has been achieved with some resulting improvements there is the suggestion of a **category 2 deficiency**.

5. Physical facilities

6.1 Milan campus

Tare and wear are apparent, however, due to the expected move to the Lodi site no fundamental renovation but only maintenance of functionality, meeting proper hygienic conditions, is suggested.

6.1.2 Facilities basic sciences

There are no special concerns, apart from the fact that some rooms for practical exercises seem to be too small and that in certain areas laboratories and hallways are congested, imposing a hazard to staff and students. The technical equipment of teaching and research laboratories is well maintained and generally up to date.

6.1.3 Clinical facilities

Though wear and tare are obvious, the facilities are kept in good operational conditions. In view of the fact that the clinic only operates as an ambulatory clinic, all necessary instruments to provide modern veterinary service and hence an up to date, but restricted, student education are available. This does not preclude that in some areas a further specialization should not be pursued. For safety reasons also the anaesthetic apparatus should be checked. As indicated above, patients are not hospitalised and consequently an essential part of veterinary training is missing (see 4.4.2).

6.2 Lodi campus

Establishing the Lodi campus has been a big step forward. It encompasses the LATH with some necropsy facilities, in operation since 2005, and the experimental farm to go in operation end 2009. The close proximity of these facilities requires the observation of strict hygienic standards.

The facilities, including the equipment provided, meet most recent requirements, nevertheless there are a few points to be addressed.

Thus in the food animal section of the LATH better means to secure the separation of infected and non infected animals and to house infected animals individually should be established.

As long as there are no proper isolation facilities in the food animal unit there is the suggestion of a **category 1 deficiency**.

7. Animals and teaching material of animal origin

Apart from the need to provide more companion animals for anatomic dissections the only problem relates to the number of food animals available for clinical training. Neither the denominator for in house (R11) nor the one for extramural training (R12) are met. This point has already been addressed under 4.4.3.

8. Library and educational resources

Excellent facilities are being provided.

9. Admission and enrolment

The number of students admitted is proposed by the Faculty but must be confirmed by the MIUR. Admission is based on the high school degree and the results obtained in a national bar-exam.

10. Academic and support staff

There is never enough staff in a veterinary faculty and the denominator for R1 seems to indicates that there is a slight shortage in academic staff. However, due to the large number of “off course” students not participating in teaching, this figure is not very strong.

11. Continuing education (CPE)

Compulsory CPE was introduced in Italy in 2004. The Faculty is strongly engaged, however, in order to do so administrative hurdles within the university have to be overcome, a matter which should be discussed between the various responsible bodies.

12. Postgraduate education

Professional track: The Faculty participates as a National Specialization School as well as an establishment offering intern- and residency training for a European Diplomate diploma. In respect to an academic career the European Diplomate should receive the necessary recognition.

Academic track: A postgraduate doctorate course program is offered with two underlying tracks. Apart from the requirements to obtain a certain amount of credits it fulfils the basic requirements of a PhD program. The Faculty should consider to strengthen this program, e.g. by defining requests on publication.

13. Research

The Faculty is highly involved in research; undergraduates are offered the possibility to participate. The low interest of postgraduates may reflect the situation that each student has to write a “thesis” prior to graduation (see 4).

ECOVE-decision – NON-APPROVAL

As the following category I def are present.

1. **No hospitalization of small animals**
2. **Lack of mobile clinic**
3. **Lack of farm animals (swine medicine)**
4. **No isolation facilities for farm animals**