

**European Association of Establishments for Veterinary Education**  
**European System of Evaluation of Veterinary Training**

**REPORT ON THE VISIT TO THE FACULTY OF  
VETERINARY MEDICINE OF MESSINA, ITALY**

*4 -8 March 2013*

**by the EXPERT GROUP**

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## **INTRODUCTION**

The department of Veterinary Sciences<sup>1</sup> (FVMM) is one of the 21 departments of the large University of Messina. FVMM was founded in 1926 and progressively relocated from 2001 until 2007 to a modern and purpose built campus, situated within the city limits of Messina. The spacious building complex includes an adjacent small farm with stables and paddocks for horses and farm animals. The major part of the large animal clinics, however, is still under construction. FVMM has undergone one EAEVE-visitation/evaluation (with negative outcome) in 2001; at the time, this former on-site visit took place the old campus was still in use and evaluation was based on a curriculum which has undergone a major revision in 2007, and which is now fully compatible with EU Directive 36/2005.

The FVMM is in a strategic position from socio-economic, geographic and political standpoints. The region of Sicily has a special political statute; agriculture plays an important role in Sicily, governed by tradition and specific socio-economic needs. There is an important population of small ruminants, less dairy and beef cattle production and a relative unimportant equine population. Poultry, fish and seafood production play a major role in the agro-alimentary industry. Pet animals become increasingly important in rural areas; in big agglomerations such as in Messina, the dog and cat population is abundant, although the number of homeless animals is substantial. A network of private practices specialising in all species is well developed.

FVMM is the only veterinary teaching establishment in the very south of Italy separated by several hundred kilometers (and by the strait of Messina) from the neighboring veterinary schools of Naples and Bari. The school plays therefore an important role for animal and human health not only for the island of Sicily but also for the region of Calabria on the mainland of Italy.

## **1 OBJECTIVES & STRATEGY**

### **1.1 Findings**

The objectives of veterinary education in Italy are well defined and governed by law. FVMM strictly follows these objectives as verified on site. The new study law became into effect June 2012 and is fully compatible with EU Directive 36/2005 and EAEVE standards. Academic independence within the University, academic freedom and autonomy within the limits of law are fully guaranteed. All objectives are well defined and described in the SER as well as published within the respective regulations and study programmes. Objectives and strategies are of the usual standards; on the other hand, the objectives to be a centre of excellence in marine mammal and fish disease research and in Sicilian food and feed production control are exceptional. To that end, Master degree courses is offered in Pet Therapy as well as several PhD programs and courses of national specialisation, which enhance transversality between and integration with other the Departments, especially those

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<sup>1</sup> In Italy, based on a nationwide law from 2012, faculties had undergone major reorganisations and were all replaced by Departments. Deans are now called department heads. In the SER, however, because written last year before the law was enacted, the term "faculty" is still used, thus the abbreviation FVMM.

of Medicine and of Pharmacy such as Degree Courses in Gastronomic Sciences and Health Biotechnologies.

An important objective is the swift completion of and rendering fully functional the large animal clinics (semicircle) and the on-campus food animal farm.

Department-wide objectives and strategies are being discussed and defined by the Faculty Council. Annual departmental reports and self-evaluation reports delivered by the dean to the rector are being benchmarked against the formulated objectives.

## **1.2 Comment**

Although the department's objectives and strategies are well described in the SER they are not formulated as mission/vision statement publicly available, that is for instance at the university/department home page.

The objectives should include long-term strategic planning in terms of personnel and staff strategies (replacement of retiring faculty, internship and residency programmes, increasing support-staff numbers), research strategies (enhancing clinical research) and creating a business plan by developing new, or activating dormant sources of revenue such as clinical service income, diagnostic laboratory income and income from research and industry. Linking these objectives to a financial business plan would be desirable (see chapter 3).

Revision and performance monitoring of objectives and strategies should be done more frequently and should be made public.

## **1.3 Suggestions**

Publish mission/vision statement on the web page. Publish annually attainment levels and strategies to fulfil objectives and missions. Create a transparent long-term (5-year) business plan. Enhance internationality on all levels and include in objectives.

Make increasingly academic freedom and autonomy the underlying principle of strategic decisions, thereby enhancing progress and challenging bureaucracy and stagnancy.

Specialisation on the College level should become a major objective and strategic goal, especially in the clinical disciplines; this entails residency programmes, internships and the resulting clinical research. In turn it will increase service income by creating centres of excellence. The overall goal of VTH should be to offer training and services which are at least equal or better than most of the private veterinary clinics in the region.

## **2 ORGANISATION**

### **2.1 Findings**

The organization of the FVMM within the framework of the University of Messina is standard and similar to many publicly governed and financed Veterinary Schools in Europe. Details are well described in the SER page 33.

The Department of Veterinary Sciences (identical to “faculty”) is a part of University of Messina (UNIME). UNIME is a large national state-funded university, composed of 1186 teaching staff members, 749 administrative personnel and 29,843 students. The overall number of veterinary medicine students was 665 in year 2011-2012.

UNIME is headed by a rector, who has the functions of initiating, promoting and implementing university policies. The Academic Senate represents the political government of the UNIME. The Council of Board of Administration manages all administrative, economic, financial and patrimonial aspects. The Departments are the structures of the UNIME entrusted with the organization and coordination of teaching and research activities within the respective disciplines. Departments have administrative and financial autonomy.

The bodies of the Veterinary Medicine teaching establishment at the UNIME are the Head of the Department (who fulfills similar functions as the former dean – and, in fact, is the same person), the Department Council, the Degree Course Councils and the Department. The Head of department represents the Department and supervises all its activities. The Department Council coordinates and decides all departmental activities and verifies their efficiency. The Council is composed of the Department Head, all the full/associate/assistant professors in service, administration secretary, representatives of technical and administrative staff and 10 student representatives. The Council can appoint committees for specific tasks. The Degree Course Council organizes and coordinates all teaching activities of the Degree Course (veterinary curriculum).

The new university law foresees the creation of “interdepartmental centers” which have a special status in terms of administrative and financial independence. The Veterinary Teaching Hospital (VTH) was established in 2012 as such “interdepartmental centre” in order to allow all veterinary units to provide integrated services through it.

Relations of the FVMM to the local and state veterinary authorities are excellent. Every province of Sicily and each of the five of Calabria has its own local Veterinary Chamber (licensing body), whose activities are coordinated by the respective Regional Federations of Veterinary Chambers. The presidents of the Chambers are regularly interacting with the FVMM in order to modulate the teaching activity.

## **2.2 Comments**

The Department of Veterinary Sciences seems to have adequate flexibility and effective structure for decision making. The number of students and staff representatives in the Department Council and the Degree Course Council seems sufficient and students could name many situations where their suggestions had “gone through”.

Where law and regulations do not foresee and define certain functional modalities, we sometimes perceived our suggestions as being judged as “forbidden by law”; although this might be correct in some instances, we believe that ways can be found to create for instance new positions or professional categories such as veterinary nurses, clinical interns, residents and to pay and employ them on non-governmental short to medium term contracts. Revenue increases through services run and managed as in private enterprises are other examples.

## **2.3 Suggestions**

The Practical Training Committee should have a student member. This Committee should be more active and its decisions and suggestions should have important impact on clinical teaching and other practical teaching. Increasing case load on all levels, coordinated hands-on practical teaching, use of alternative teaching models in basic surgery training, attainment of first day practical competencies, as examples, all this should fall into the competency and responsibility of this Committee, which appeared to us rather inactive and undervalued.

Review the Committee structure of FVMM in general, with perhaps reducing size and increasing efficiency of some (Department Council?), giving more authority and importance to others (Practical Training Committee, Long-term planning Committee – to be formed), and reducing the administrative burden.

New positions should be created and defined from the organizational standpoint and in a first step independent of financial considerations; that is for instance: Interns (rotating internship program in the VTH), residents, and veterinary nursing staff.

Coordination of and collaboration in teaching should be thought on a national level with other and preferably with neighboring veterinary schools. That is, where centers of excellence exist students could be sent between schools to benefit from expertise in areas or disciplines not available in one or the other school. That is for instance, if one animal species is less present in one region then undergraduate students from this region could acquire advanced and practical experience in a school offering such training on a higher level.

The recruiting policy for academic staff should become more transparent, internationalized and tailored to the Department's needs. "In-house recruitment" of staff on the higher level should be authorized only in exceptional cases or only after the respective faculty member has acquired outside experience. Clinical positions to be filled should first be offered to specialists on the College level.

Although it is important that students are exposed to many house-keeping and animal care taking tasks, a VTH cannot depend solely on student help. This becomes especially apparent during vacation periods in the hospitalization services, and the emergency and intensive care stations. Therefore plans should be made to increase and train nursing staff.

## **3 FINANCES**

### **3.1 Findings**

As all public universities in Italy, UNIME is fully owned and financed by the government. Nationwide legislation governs therefore distribution of funds on the university level, determines tuition fees (approx. €1000 per year), dictates annual numbers of student admissions, and pays directly salaries to all university staff; salaries are not negotiable and are not merit/performance associated; they depend solely on grade and seniority.

Funds (so called ordinary funds) paid to the university are distributed to the individual departments (former faculties) through a complex distribution key which is correlated among other to teaching load, student numbers and services provided. Based on nationwide cuts in university budgets, ordinary funds are not increasing; in the contrary, strict economic

measures are being applied such as frequent non-replacement of retiring senior teaching staff (at least not on the same professorial level), scarcity of funds for replacement and maintenance of equipment and premises. For instance, although the small animal hospital is finished and functioning, externally, the building has an unfinished aspect. The scarcity of technical staff, especially in the clinics and in housekeeping has no chance to be augmented by financing through ordinary funds; the same is true for new positions we do recommend such as employing interns and residents. The Department Council decides how to allocate ordinary funds received within the Department. Since in this Council all groups are represented a sufficient degree of financial autonomy of the Faculty seems guaranteed.

Allocation of so called extraordinary funds, on the other hand, is based on funds provided by UNIME and/or region for specific projects or investments. For instance, such extraordinary funds have already been approved for the construction and finalisation of the large animal teaching hospital (so called hemicycle) and for the building plans at the campus farm.

Although funds are never sufficient, especially in this economically difficult situation, the faculty can still deliver proper teaching (under the limitations of those spelled out as major deficiencies in this report); nevertheless, in many areas, enthusiasm and personal sacrifice of teaching staff in terms of time and effort is evidently necessary to maintain standards. Also, that most of teaching is delivered properly under the present financial restraints is only possible, because of the relative low number (55-60) students admitted annually. (Originally, the faculty and its premises were certainly designed for larger numbers of students).

Income through research or through project funding by industry or region (which in some areas is substantial, e.g. animal production >3 million in 2012) can be used by the grantee nearly fully. Overhead payments to department or university are very low (<10%) or absent.

Income from services (clinical, diagnostic labs etc.) is very low (in 2012 €31.500) – the total annual budget of FVMM was 6,5 million in 2012, this figure includes salaries of nearly all staff (budgeted posts). FVMM does not employ any appreciable number of non-budgeted personnel, with the exception of PhD students (remunerated by external funds).

### **3.2 Comments**

In allocating annually funds to the FVMM, the university administration should recognise the fact that veterinary education is among the most expensive studies; to train undergraduate veterinary students, the total average costs are €20.000 per annum and student. This is substantially more than training in other disciplines nevertheless the distribution of public funds does not fully recognise these differences.

The recent structural and functional changes (study law and law substituting faculties by departments) imposed nationwide make financial planning difficult: the new study law demands a substantial increase in practical teaching, on the other hand, financial support that is a necessary budget increase is not or insufficiently provided; a solution is not visible at the present time. The new Department structure entails a new usage and distribution system of funds with the main goal of the legislator of being more economical than the previous faculty structure. As this new structuring is an ongoing and just now evolving process, long term financial planning seems difficult. A long term financial plan has not been established

The precarious budgetary condition will likely not change to the better within the foreseeable future; therefore, the FVMM will have to search actively for alternative revenues; this will

likely require a profound change of the traditional attitude towards provision of services and funds within a publicly financed Department.

The income from services is by far too low and can be substantially increased by creating poles of excellence (clinics) and by using in a business-like manner the available know-how (faculty expertise), equipment (diagnostic laboratories) and premises (clinics, laboratories). Revenue generated should be invested to improve working conditions by increasing technical staff, by creating residency positions thereby benefitting research and teaching. On the long run, such process is expected to be auto-sustaining and synergistic. In the beginning, substantial investments especially in a properly running teaching hospital (small and large animal) will be necessary, however. These developments should be governed by a long-term business plan, and monitored by a dedicated committee.

Although tuition fees are determined by governmental decree, the fees should be substantially increased to better reflect the real costs of forming veterinary graduates and to adapt to such trend in several European member states.

### **3.3 Suggestions**

Teaching funds allocated by UNIME to FVMM should be as much as possible proportional to the real costs of veterinary training (€20.000/student/year). Teaching funds must increase especially in context with the by law required increase in practical teaching (especially in the Tirocinio).

Given the budgetary restraints, student numbers should not increase; tuition should increase and any increase should directly benefit the respective teaching faculty.

A long-term (5 year) business plan should be established and be governed and progressively evaluated by a dedicated committee.

Non-budgeted income, that is income through services (especially clinical) and research (in some areas) should be substantially increased with revenues invested in mainly in personnel (intern and residency programmes, technical support and nursing staff, clinical research),

Finishing the large animal clinics and rendering them functional in the larger sense (including, necropsy services, imagery, diversified case load etc.) should have absolute priority (see major deficiency).

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

Create and define new faculty and staff positions such as "Intern", "Resident", "Veterinary Nurse" and allocate to these positions salary frames in order to facilitate business planning and fund allocation.

Increase to reasonable levels overhead deductions for research grants and other external funds; include in business planning.

Reduce as much as possible part time and extramural employment of clinical staff, except when in the interest of extramural teaching.

Change the concept of extramural teaching by reducing it in the pre-tirocinio semesters and concentrating clinical and other practical teaching within the intramural facilities, thereby economising on one hand and, on the other, reinforcing the need for increased case load and specialisation.

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

## **4 CURRICULUM**

### **4.1 GENERAL ASPECTS**

#### **4.1.1 Findings**

The general aspects of the curriculum comply with the EU requirements as described in the directive 36/2005.

The studies last 5 years inside the faculty and cover all EU-listed subjects.

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

One University learning credit (ULC) corresponds to 25 hours of learning commitment (lectures, practical and individual work).

MD 270 says that the students must acquire 300 ULC during the 5 years in order to obtain the degree in Veterinary medicine.

They graduate as Doctor in Veterinary Medicine. The students have regular examinations in all topics, all along their studies, and write a doctoral thesis at the end of the curriculum. The doctor degree is necessary for exercising the profession.

Clinical training is supervised in small groups, and the students have additional supervised practical training, called "TIROCINIO" which is a special hands-on experience period.

All practical activities can be monitored and are checked in a logbook, where each practical skill is signed by the teacher, or contracted teacher present. (See annex n°3). This work is performed in part at the faculty, in part in extra mural activities.

In-class attendance is mandatory for 70% of lecture hours. The hands-on practicals are mandatory 100%. These practicals are taught in small groups and on a very personal level for each student.

R6: ok; R7: just at the level; R8: ok

#### **4.1.2 Comments**

As the new curriculum is not yet applied in the 4th and 5th year course, it is difficult to appreciate the exact ratios. Nevertheless, we can say that in the new curriculum, there is a

substantial increase of practical activities with the implementation of TIROCINIO of 30 UCL, i.e. 750 of hands-on clinical and public veterinary health training. In the new curriculum the TIROCINIO will be of 750 hours, which will give a good balance between the theoretical and practical learning.

Generally, for outside practical activities, students are not always reimbursed for their travel expenses. They need very often to use their own vehicle, and as Messina is not in very high density region of farming, the minimum is often 80 km to go for instance to Catania, and sometimes more to reach the Ragusa region where poultry and swine farms are located.

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

### **4.1.3 Suggestions**

In the Tirocinio, progressive student evaluation should be performed more frequently and should be standardized in close collaboration with the contracted extramural teachers (adjunct faculty). Communication and coordination with the extramural contracted teachers should be intensified and further improved.

Financial support has to be found for the extra mural activities, especially for transportation, and proper protective clothes (suits, shoes, gloves, masks, hair protection...) needed for coming inside the facilities if no provided by the slaughterhouse or the farm, or else (this also constitutes potential bio security bio safety problem).

We suggest asking pharmaceutical and/or industrial companies for sponsorship, if the faculty is not able to provide all that is necessary.

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

### **4.2.1 Findings**

FVMM insures that enrolled students have the necessary and equal competencies within the basic subjects by admitting all applicants to an admission test of which  $\frac{3}{4}$  of the questions concern biology, chemistry, physics and mathematics. (see SER chapter 4).

A compulsory English language course (5 UCL) is taught in the first year. Despite this, students were generally not capable of communicating orally with the visitation team in English.

The basic subjects as listed in the EU-directive Physics, Chemistry, Animal biology, Plant biology, Biomathematics are all part of the core curriculum taught at FVMM and take up 18 ECTS thus 10% of the bachelor curriculum. They are all except Plant Biology taught within the 1st year.

As in many modern veterinary curricula, the basic subjects have been organized as multi-disciplinary courses or integrated into relevant basic science courses (e.g. Physics, Statistics

and Informatics, Macromolecular chemistry of Biological interest, Introductory Anatomy including zoology and Large Animal Nutrition and Feeding including Plant Biology.

Teaching of the basic subjects as Physics, Biomathematics and Plant biology is carried out by faculty from other UNIME Departments. Plant biology is integrated into animal nutrition. The content, quality and grading-system of these subjects are as all other courses evaluated by The Joint Teaching Committee (JTC) of the FVMM and subsequently presented to the Degree Course Council (DCC) for discussion and approval. However, students mention that very low passing rates of by The Joint Teaching Committee (JTC) of the FVMM and subsequently presented to the Degree Course Council (DCC) for discussion and approval. Physics have not yet been addressed and solved by JTC or DCC making it unclear if the contents of this subject are taught properly and/or proportionally in relation to later and other basic sciences and applied veterinary courses.

Student's performance within the basic subjects will influence their study progress, as all Year 1 subjects must be passed in order to register for Year 3. Furthermore, students must participate in 70% of hours of in-class training (70% compulsory) in order to sit for examination. This is checked by signed "attendance lists".

The basic science areas as defined by EVEVEA / EU are all covered within the first 3 years of the curriculum in a traditional progressive way, e.g. biochemistry and anatomy in Year 1, continuing with physiology, immunology, microbiology and general pathology in Year 2 ending with pharmacology, infectious diseases including epidemiology, and special pathology in Year 3.

The teaching of basic subjects and science is comprised of, e.g. 55%-60% classical lectures, 40% practical exercises and a minor part (less than 5% e-learning). The theoretical learning is supported by the (i) recommended text books which primarily in Italian though often translations of internationally recognized English text books, (ii) lecture notes that are either up-loaded on the university intranet course pages or distributed on CD-ROMs, (iii) as mentioned practical exercises and (iv) by self-directed e-learning teaching possibilities (CD-ROMs, quizzes) in a few courses (ie. anatomy, physiology and microbiology / infectious diseases).

The items taught in basic science are clearly brought into relation to later courses in some, e.g. anatomy and radiology / surgery / analgesia, physiology and electro-cardiography, pharmacology and therapeutics (drug administration). Also the basic subjects (Chemistry) are brought into relation with biochemistry and physiology, as these courses are taught by the same departmental unit.

For practical exercises, students are organized in 3 groups of around 15-20 students rotating between the various practical modules or exercises within each course. These groups may be split up in even smaller groups of 5-7 students, all supervised by one teacher (professor or PhD-student), e.g. during gross anatomy, histology, physiology, anatomical pathology and necropsy exercises. A group size of 15-20 students equivalents the capacity of the basic science laboratories, dissection and necropsy halls.

The practical exercises covers key elements of each course and are comprised both laboratory work (e.g. in physiology, biochemistry, parasitology, microbiology, pathology) and non-clinical animal work (e.g. dissections, necropsies, anatomical and pathological exercises on slaughterhouse material), but also pre-clinical work on dogs and horses in relation to

physiology (electro-cardiography, and locomotion exercises), anatomy (topographic anatomy exercises) and pharmacology (drug administration exercises). However, the financial resources for the different courses do not allow any payment of the specimens and samples used for the student training.

Practical exercises in gross anatomy and pathology are carried out on fresh or frozen/thawed organ specimens and less frequently on whole cadavers of small animals under adequate bio-safety and bio-security conditions in the gross anatomy dissection and necropsy hall, respectively are adequate for this type of specimen. Students are taught good laboratory practice within the chemistry / biochemistry course, and are instructed in laboratory safety procedures before starting laboratory work.

Fresh normal as well as pathological organ specimens from ruminant, pig and horse are obtained in adequate numbers from a local slaughterhouse. Dog cadavers for anatomical dissections are available from a local dog shelter, while cat cadavers are very few. Poultry and piglets are gathered also in low but adequate numbers from contracted farms.

There is a serious lack of whole large animal alimentary specimens and whole cadavers for anatomical exercises and necropsies as well as critical low number of companion animal cadavers for necropsy (cf. SER page 145: R18 = 0,33 and R20 = 0,69). This has both logistic and legislative reasons. The present necropsy room and dissection hall can only hold and handle small and light specimens, and the Italian legislation does not allow other than Official Veterinarians to perform autopsies on cadavers outside the faculty or any dissection of animals died in the field without special permission from the the Public Health Agencies (PHA).The FVMM has got this for dogs, but students have to be watch topographic anatomy and “necropsy” on carcasses of healthy and normal large animals being slaughtered at the local slaughterhouse.

#### **4.2.2 Comments**

The basic subject and basic science curriculum is generally of high standard and follows the requirements of the EAEVE SOP annex 1. The very favorable “Veterinary teacher – student ratio” (cf. SER page 169, R4= 0,97) makes it possible to closely supervise students throughout the first 3 years. This is a major strength of the pre-clinical undergraduate education, and is probably part of the reason for the very positive and engaged contact between students and teachers.

The lack of possibilities of large animal cadavers for gross anatomy teaching and necropsies is a major concern that must be to be solved. Likewise, is the insufficient number of cats and dogs for necropsy a serious problem that needs to be attended and solved.

The insufficient English language capability of students is also a concern seen in an international / European perspective, and should be addressed by the department.

The problems mentioned by students in relation to passing rates in Physics (which should be taught as “Medical Physics”) may be a result of a relative lack of relation and correlation to the later veterinary curriculum. It is not appropriate for a veterinary education that a basic subject taught in the first year of a veterinary curriculum forms a serious barrier for the study progress of students.

Likewise, post-graduate students confirmed that there is a need of proper statistical knowledge. It is unclear if this opinion has its root in lack of alignment between the present statistical course and the needs of statistical knowledge in the following veterinary courses.

The use of learning management systems varies very much between the departmental units. The unit for Microbiology, Virology and Infectious Diseases has a very comprehensive internet course site, while the unit of anatomy according to students does not hand-out or upload course notes at all. This is not appropriate for an academic institution where sharing of knowledge with students is of utmost importance. Therefore, important course information, such as course notes, recommended literature, intended course learning goals, e-learning quizzes and videos etc. should be made available and up-loadable for students at any time for all courses.

### **4.2.3 Suggestions**

It is strongly recommended that the new planned necropsy hall that can take in large animals and large alimentary specimens for teaching purposes is build and made functional immediately. Furthermore, it is necessary for FVMM to obtain permission from The Experimental Zooprophyactic Institute to carry out necropsies on all domestic animal species for teaching purposes whether or not these animals originate from FVMM's own clinics or farm or from contracted professional organizations or farms. It is imperative that the law does not prevent the veterinary faculties to have large animals (horses and cattle) which died in the field transferred for post-mortem examination and it is important that academic institutions are not hampered to perform necropsies on the departmental premises and on farms for teaching and research purposes. Veterinary faculties (FVMM in this case) have to be fully inserted into Public Health insurance. If it is not possible to obtain in due time the said permission, effective compensatory actions must be taken to ensure that students can perform the required number of necropsies (cf. EAEVE- SOP ratios) at other facilities under appropriate teaching conditions. Teaching of bio-security/safety measures especially in the necropsy environment should be enhanced.

Continued improvement of anatomy teaching using increasingly whole carcasses and large animals (equidae and cattle) is mandatory.

The insufficient language capabilities of students must be addressed by FVMM. This could be done by changing the weight or augment the MC-questions in the admission test to comprise an English test. Furthermore, the compulsory English course should be revised so the examination is comparable to and compatible with international English standard tests as the TOEFL or ILTS tests.

Implementation of common guidelines for the use of the learning management systems in order to ensure that relevant educational and teaching information is available for the students, including off-course students.

Integration of all basic subjects into basic science courses in order to ensure alignment and close relationship to the veterinary field.

A peer review of Physics teaching should be performed including an analysis whether teaching is sufficiently veterinary medicine-oriented and whether sufficient integration with

clinical subjects (e.g. medical imaging, endoscopy, laser surgery, physical therapy etc.) is present

### **4.3 ANIMAL PRODUCTION**

#### **4.3.1 Findings**

As far as lectures are concerned, we found that all topics necessary were covered well taught. That is animal breeding and genetics, rural economy, animal husbandry in different species of farm animals, meat and milk production, rabbit, poultry, fish raising and bee keeping large animal nutrition and feeding with agronomy and plant biology teaching. (See SER paragraph 7.7 p118). In general, modern teaching methods are used including e-learning.

In regard to practical activities, Animal Production (AP) unit shares laboratories with the “Meat research consortium (MRC)” which is a Research Centre of the Sicilian Government. Laboratories of the MRC are equipped with modern instruments and meet requirements of the European standard EN ISO/IEC 17025:2005 and the principles of ISO 9001:2008 with the Accreditation Certificate no. 0682. The bio-safety and bio-security measures inside the laboratories are fully respected.

AP staff showed the ability to attract substantial funding as testified by the 3rd party revenues of the AP unit and the MRC which in the last 4 years have amounted to about € 5 million from Research activities (EU-National, Regional, local programmes), post graduate education programs and from Services to the Faculty, to external veterinarians and private companies as well. Two AP staff members offer services to pet owners through the VTH.

Students are evaluated with written and oral exams, for practical formulation of diets, with appropriate software on laptops.

Within the campus, we inspected a very small teaching farm (UAF) with some horses and donkey, and few bovines. Unfortunately, students, during the old curriculum, are very late in the curriculum exposed to handling of animals, and very late able to perform clinical examinations. This is now changing to the better in the new curriculum; In fact, in the 2nd year of the new curriculum, students learn to handle animals at UAF during the AP practical training. Also, in the near future a project already approved and financed by the UNIME will remodel the UAF. The construction of new facilities will allow the UAF to increase its potential for rearing equines, cattle, sheep and goats, rabbits and poultry. The new structure will host a service room, an exam room, a manure collection system and a structure for feed storage.

The existing outsourcing of food animal teaching, especially husbandry and propaedeutics in extramural contracted facilities and large animal practitioners cannot fully replace the permanent contact with animals housed at the faculty and its own farm, but plays an important and positive role in the animal production related syllabus.

For animal nutrition teaching and for husbandry, the accessible facilities provided by local food processing industry and local farms are an important means for conducting practicals in these subjects..Visits to such plants with practical teaching are conducted regularly.

We noted good teaching of animal welfare, by a dedicated and motivated teacher; however, it seems still a challenge in some rural areas in Sicily that animal welfare concepts find recognition and are being respected; more reason to give all possible faculty support for teaching this subject well.

Forensic and state veterinary medicine cover all subjects related, especially certification for animal transportation. This topic is particularly important in Sicily, because of the high number of cattle imported from France (for example) for a fattening period and sometimes going back to France to be slaughtered.

#### **4.3.2 Comments**

In the new curriculum, we think that there is a good balance between reducing theoretical courses and increasing practical work, and extra-mural activities. This can be checked during the TIROCINIO period, where every task is achieved and signed in a special logbook.

We hope that in the to-be-built large animal teaching hospital will play an important role in practical AP teaching.

#### **4.3.3 Suggestions**

Building as soon as possible the large animal teaching hospital and enlarging and improving as soon as possible the university animal farm (UAF)

Having new bio-safety measures in place and procedures to prevent contamination inside and outside facilities (at the faculty and in extra-mural activities: farm, slaughter houses, feed processing companies).

Increasing and improving early handling of animals during the curriculum.

Improving learning of herd health management, with regard to transversality to nutrition, husbandry and metabolic or infectious diseases.

### **4.4 CLINICAL SCIENCES**

#### **4.4.1 Findings**

Teaching is currently in transition from an old MD 509 based curriculum to a new MD 270 founded curriculum. The new curriculum is fully implemented at the bachelor education (i.e. 1st, 2nd, 3rd year) while a transitional curriculum has been implemented on the master education (i.e. 4th, 5th ). Within the next 2 years, this transition will be completed and all students will follow the new curriculum. However, due to implementation of the transitional master curriculum, students are already getting increased practical (clinical) training even though the new MD 270 curriculum is not fully implanted which is seen as a positive sign.

The University Learning Credit-system (ULC) has been established (corresponds 1 to 1 to the ECTS). One ULC credit corresponds to 25 hours of learning commitment per student. Italian university education is regulated by the law MD 509, establishing that individual work (self-directed learning) cannot be less than 13.5 hours per ULC except in practical learning, where it is zero; that is one ULC in the Tirocinio corresponds to 25 effective hours of practical

training. However, each university may define in its Teaching Regulation the fraction each student needs to dedicate to individual (self-directed) learning (MD 270) . In the Curriculum of UNIME, individual work can range from 10-17 hours. For specific activities – like practical training, the individual work time allocated can be 0. The total number of ULC necessary to obtain the veterinary degree is 300 ULC (legislation MD 270).

In the present MD 509 curriculum on Year 4 and 5, clinical science courses take up 29 UCL and 31 UCL respectively, of which 40% or more are taught as practical clinical work (cf. SER, tables 4.1.4 and 4.1.5). In addition students at the two final years of with the MD 509 curriculum receive 11 UCL (ie. 275 h) of hands-on-clinical training within a modified TIROCINIO programme implemented during this transitional phase. The whole clinical sciences part is 98 ULC corresponding to 1543 hrs.

As the new MD 270 curriculum is fully implemented on all Years, the full 30 ULC of practical hands-on-training throughout the TIROCINIO can be done both in Faculty premises as well as in State Institutions offering veterinary services to the public (like Provincial Health Authority PHA), Experimental Zooprophyllactic Institute (EZ) and/or in private practises/clinics with those veterinarians acting as contract professors. The recent reduction of student numbers (admissions, class size) in 2012/13 from 100 students per year to 56 per year, support the opportunities for closely supervision in hands-on training.

The curriculum is divided into basic (min 58 ULC) and professionalizing (min 130 ULC) subjects. Also there is a possibility to include integrative subjects (min 12 ULC), optional (min 8 ULC) and practicals (min 30 ULC) into curriculum. Also the graduation thesis is graded in ULC's now.

In the reorganization process, the class-regulation was established in order to increase practical training throughout the TIROCINIO, meaning that 30 ULC can be done both in Faculty premises as well as in State Institutions offering veterinary services to the public (like Provincial Health Authority PHA), Experimental Zooprophyllactic Institute (EZ) and/or in private practises/clinics with those veterinarians acting as contract professors.

The major change compared to the old curriculum in Course Teaching Regulation is that in teaching modules (multidisciplinary) the total volume of hours in each discipline should have at least 40% of supervised practical work and students divided in groups of max 15 students each. This change is enacted now and was realized for students of the last years (of the old curriculum MD 509) as well.

Also the student numbers (admissions, class size) went down from 100 to 56 for the years 2012-2013 which gives more opportunities for practical supervision in hands-on training.

All courses (except English) are multidisciplinary meaning that they consist of a main module of a minimum of 4 ULC and additional modules of 2 ULC each (which may be from different disciplines). Maximum number of examinations/evaluations is limited to 30 throughout the curriculum.

Different disciplines have different amounts of theoretical + supervised/practical training vs. self-studying: e.g. pathology each ULC consists of 14 hrs of in-class training (theoretical and/or supervised practical training) and 11 hrs self-studying (total 25 hrs = 1 ULC)

Corresponding figures in Clinical sciences is 15 hrs vs. 10 hrs. To increase hands-on work for professionalizing courses, the TIROCINIO has been established containing core subjects where 1 ULC corresponds always to full 25 hours of hands-on supervised practical training.

The whole clinical sciences part is 98 ULC corresponding to 1543 hrs.

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

Clinical work in in-class training (550 hrs) consists of

- 10 hrs in the 2nd year (parasitology),
- 66 hrs in the 3rd (infectious diseases and avian pathology),
- 168 hrs in the 4th (pathology 20, dg imaging+endoscopy 12, dg lab.medicine 4, surgical pathology 36 hrs, surgical semiology 36 hrs, radiology 16 hrs, reproduction 20 hrs, neonatology 6 hrs, obstetrics 6 hrs). ). This covers e.g. collection blood and urine, rectal examination, uterine catheterization as well as identification and use of clinical instruments and equipment (ultrasonography, radiography, CT, clinical chemistry, surgical instruments etc.)
- 306 hrs in the 5th year (SA medicine 22, SA medical .therapy 6, LA internal medicine 38, LA med therapy 6, vet.law and legislation 6, surgical clinic 28, operatory medicine 24, anaesthesiology 19, obstetrics - gynaecology clinic 32, andrology 19, TIROCINIO 125). In addition, the basic science courses as Anatomy, Physiology, Pharmacology and Animal Husbandry incorporate clinical aspects of their area within their practical exercises:
- The 1st year students learn basic anatomy on live animals, the 2nd year students learn large animal handling in Production animal practicals and in Physiology - how to monitor temp, heart rate, respiratory rate as included in 24 + 28 hrs non-clinical work. The 3rd year students have also practicals in handling live animals in animal husbandry.
- On 4th year students are trained in clinical signs of large and small animals to collect blood, urine, do rectal exam, and uterine catheterization as well as identification and use of clinical instruments and equipment (ultrasonography, radiography, CT, clinical chemistry, surgical instruments etc.)

In addition, the basic science courses as Anatomy, Physiology, Pharmacology and Animal Husbandry incorporate clinical aspects of their area within their practical exercises:

- 1st year students learn basic anatomy on live animals,
- 2nd year students learn large animal handling in Production animal practicals, and in Physiology practicals on "how to monitor" temp, heart rate, respiratory rate and observational studies of normal gait are included.
- 3rd year students have practicals in handling live animals in animal husbandry.

In-class attendance is mandatory for 70% of lecture hours. The hands-on practicals are mandatory 100%. These practicals are taught in small groups and on a very personal level for each student. Teachers are very dedicated to teach the students on one-to-one basis.

TIROCINIO (new curriculum) is done in rotating groups of 5-7 students each, and students can electronically choose their place of training. During present transitory period, small animal clinical work (Tirocinio) is limited to 14 days corresponding to 2 ULC at the VTH, consisting of internal medicine, surgery, reproduction and intensive care. The clinical work regarding swine, ruminant and equine practice is limited to one week in each field (3 x1 UCL), all done as extramural training. However, with the full implementation of the new MD 270 curriculum the total hours of hands-on-clinical- training (Tirocinio) is supposed to triple.

#### **4.4.2 Comments**

##### *Lectures*

Lectures in clinical sciences are partly subdivided into organ systems and partly into species (canine, feline, bovine, and equine). Theoretical basic knowledge required e.g. surgical pathology and basic surgical procedures, medicine etc. are well lectured in one larger series of lectures as these are the same in all species of animals. A similar systematic approach as outlined in modern textbooks should be used.

However, students see cases in practise based on species and to a lesser degree based on disease processes (dog, cat, cow etc); lectures should therefore adapt to this fact and should be based more on animal species and their diseases than on disease processes across species. Textbooks used are standard textbooks used in veterinary teaching and some of these have been translated into Italian.

##### *Practical teaching*

In the old curriculum, the amount of hands-on work is 275 hrs (11 ULC), and in the new curriculum hands-on work is increased to 750 hrs (30 ULC). This is seen as a very positive change. There is a clear understanding and determination by the faculty to increase the clinical practical training, once the necessary prerequisites such as buildings and services of VTH are completed, The large animal clinic is only partially built and not functional. .

In the old curriculum, practical training of only 14 days (2 ULC) in small animals was far too short to complete the aims ie. to acquire practical knowledge in the EU- listed clinical subjects. Additionally, the very low case load of VTH at present in small animals with an extremely low number of stationary (hospitalised) patients and the recently established emergency service (since Feb 2013) does not yet sufficiently allow proper learning and hands-on training within the Faculty. Therefore the faculty has contracted several private clinics (one of them owned and run by a teacher of the clinical faculty) where students must spend 50% of the training time (7 days = 1 ULC) in small animal clinics. Although these practices are well established, professionally run and have a satisfactory case load, they cannot fully compensate for the relative lack of patients in the VTH. This also, because the students spend only several hours per day in a non-continuous fashion in those clinics, see cases on a random basis and get rather snapshots of clinical experiences instead of having the opportunity to monitor and modulate disease and healing processes (including post-mortem exams) over time (days) on individual and diversified cases. Some of those contracted clinics are several hundred kilometres distant (the two equine clinics in Rome) others, are either across the strait of Messina or quite far away on the island. .

Also practical training in cattle (1 week= 1 ULC) and horses (1 week= 1 ULC) as well as in swine (1 week = 1 ULC) in the old curriculum seems very minimal in the old curriculum and

students hardly gain adequate experience and practical learning from these short periods, when attending distant farms. Case numbers are almost non-existent in large animals in VTH (cows and horses), and this does not allow developing necessary and sufficient clinical skills at the present time in large animal species.

Moreover, the bio-safety and bio-security measures that we saw during the practicals of large animal teaching (propaedeutics) at the faculty's Animal Breeding Center (ABC) were very poor, with only disposables and inefficient shoe protection, or suit protection.

We hope that in the new large animal teaching hospital, planned to be built in a very short time (but likely not functional before around 24 months), more efficient hygienic measures and bio-security procedures will be put in place.

In the new curriculum additional practicals have been added as follows: SA 5 ULC (5 weeks = 125 hrs); cattle and horses both 4 ULC (100 hrs), swine 2 ULC 50 hrs and also parasitology, pathology, pharmacology (all of which had 0 in the old system vs. 1 ULC in the new), rabbit and poultry have been included. But not all clinical students follow this new curriculum yet.

Case number of the VTH in 2012 in small animals was 1228 cases and during 2013 so far 431 cases. No data is available from the emergency service, since it is operative only since two weeks prior to the visit. The cumulative number of cases seen per day in all services may vary from 3 to 14 at the most as documented in the electronic patient record system of the VTH. Both paper and electronic systems are being used for patient data storage. Students have access to the electronic case record system through individualized passwords. Examination in elective courses for clinical disciplines is based on the discussion of medical case records written by the students.

#### *TIROCINIO (extramural training)*

Students are insured during their Tirocinio training when they go out to this extramural training. The extramural part of the Tirocinio is seen as a very positive venue for students to see real veterinary work in practice but it cannot replace the training in the VTH under supervision of academic teachers those who have taught the theoretical part as well. Also cross-reference, transversality and services such as necropsy are generally not available in the field.

Altogether 89 so called "contract professors" have been hired by the faculty to cover the extramural teaching activities and €15 000 are paid annually to 6 of these veterinarians. A majority (78) are food safety/public health state officers. Only a minority (11) are, in fact, practitioners; 3 in small animals, 2 in cattle; 2 in swine; 3 in horses and 1 in poultry. This system is relatively new and has been instituted at the beginning of the academic year 2011-2012.

In small animals, Tirocinio is now carried out in 2 private practises in Calabria (Camagna and San Giorgio Veterinary Clinics) and in equine, in 2 clinics near Rome (Clinica Aemmeci (500 cases annually) and Epona Center. The team visited all those clinics except the Epona equine centre. Students spend in the most distant clinics 5 days (old curriculum) in a row – for instance the horse clinics in Rome They can participate in most procedures as scrubbed-in assistants, but not for the special surgeries. The Camagna small animal clinic sees about 4500 cases a year and 80% of these are primary cases and 20% referrals. The other small

animal clinic has about 1400 with 80% referrals and 20% primary consultation cases. Both are situated in Reggio Calabria, necessitating a short ferry ride; however, as several students are at home in Calabria, the impact on student mobility may be less than anticipated (some students were however complaining about distance, time and travel costs).

As case numbers are limited in the VTH in small animals and almost absent in equine, in old curriculum Tirocinio, 1 week stay in these contracted small animal clinics or equine clinics is better than nothing but is hardly adequate to give good hands-on training experience each, as these are partly very specialized clinics and students see rather than can do things themselves, especially in advanced cases (e.g. surgeries – where is clearly a risk for the practitioner and the patient).

By the new curriculum, students will spend 4 weeks (100 hours) in small animal, equine and bovine practises in groups of 5-6 and groups cannot be larger for effective learning and hands-on training. Therefore, groups larger than 5 students should not be in one place at the same time. If there are 50 students per course, divided in groups, there will be 10 groups of students rotating of 4 weeks, meaning 40 weeks between April and September. This means that the 2 practitioners in small animals and 2 in horses and 2 in bovine are having 5 students over 20 weeks all the time in their practise. The number of practises (2) therefore is not enough to provide training during the planned new Tirocinio. More practitioners would be needed in order to be able to take students in during this period (late April-September) to perform their Tirocinio in small groups of max 5-6 students. However we strongly discourage pursuing this avenue of outsourcing of practical teaching further, except as temporary measure until the VHT is fully functional for both small and large animals. In the future, when core teaching of practical clinical skills will be fully accomplished within the VHT, extramural rotations through practices should be continued, yet as addition only to in depth in-house clinical training.

Emergency service (ES) at VTH cannot be fully evaluated as it has just been instituted in small animal clinic (February 2013) and sees an average of 2-3 cases per 24 hrs, so far. To run the service during night hours, 4 outside veterinarians (practitioners) were contracted to do emergency service shifts. Presence of students is being organised and is mandatory. Obligatory ES duty per student is 4 nights, but students can spend more time on a voluntary basis. ES is also included in TIROCINIO with 2 ULC spent in VTH emergency. The ES is a 24 hour service operated from 08.00 am to 07.00 pm with a shift system involving teachers, researchers and PhD students. The current shift system guarantees emergency care also during lecture hours or lunch breaks. From 07.00 pm to 08.00 am ES is provided by one contracted veterinarian and at least two students. ES personnel also cares for animals hospitalized, especially in the intensive care unit.

Large animal clinical daily service at VTH is practically inexistent and so is emergency service due to the incomplete building process. Students may see large animal emergency service in practise situations during their Tirocinio. However, this is not a consistent finding and often students do not spend the night in the extramural veterinary service, either.

TIROCINIO is done both during 4th and 5th year in the new curriculum. Students write a log-book that is signed by the supervisor during TIROCINIO training. Students are frequently informally interviewed after TIROCINIO. The contract professors are being evaluated after TIROCINIO – but the students learning has not really been assessed. The evaluation of extramural training and the learning of the students have recently been re-assessed and new

system installed although experience on this is limited. There has not been any practical examination after the TIROCINIO at Faculty to assess student's practical skills (like OSCE Objective Student Clinical Examination).

Practical training abroad is possible at foreign universities. This obviously requires also English language skills of the students going. Students apply for studies abroad 2 months ahead of time – which seems a very short time to organize these types of trainings, even within Erasmus programs. The coordinator approves applications only 1 month ahead of time – which is absolutely too short a time. The international office may give sufficient advice and help for out going students but it is more than questionable that it can do that for foreign, incoming students. The English language proficiency necessary to efficiently run an International Office is not given.

Resources and clinical cases are ineffectively utilized for teaching and for practical work throughout the 4th and 5th year of the studies. Students' attendance to VTH is only 4 hours daily from 2-6 pm ie., also because there are lectures and other practicals scheduled in the same mornings. This means students are in clinics only 20 hrs per week and this altogether only during 5 weeks. This is still a very minimal amount of practical hands-on training and may be not sufficient for the acquisition of all day-1 skills required.

There is no mention about the possible animal shelter operations and what is done there. During the visit it became obvious that there is a small animal shelter (MILLEMUSI) nearby and that it is possible to have shelter dogs being castrated and spayed in the VTH. This opportunity might not be used sufficiently for the benefit of practical teaching.

The standards of hygiene and cleanliness are taught and practiced by most of the staff in the VTH as demonstrated by the signs posted at any room where the rules of conduct for the personnel and the students are given. Rules of asepsis and antisepsis in surgery are taught in the subject Operatory Veterinary Medicine. Standard methods of asepsis and antisepsis are applied in the operating rooms of the VTH by most but not all teachers. There are therefore concerns about the standards of hygiene, asepsis and antisepsis taught in some areas by some individuals in small animal surgery. All surgeries without exception should be managed and performed under internationally accepted standards with strict aseptic methods and state of the art techniques. It shall be emphasised that a university teaching hospital shall be a centre of excellence in every aspect and must be exemplary for promoting maintaining and teaching the best research-based standards. Research-based teaching is a key requirement in our EAEVE-SOP – and evaluation guidelines.

#### *Mobile Clinic*

There are two vans, used for the Mobile Clinic; one is a dedicated vehicle for the transport of students, equipment and medicines. There is however no clear and transparent daily scheduling of this mobile service, which should function like in a large animal practice.. There should be a distinction between Mobile Clinic used in clinical teaching in the 4th and 5th year – which exits must be mandatory for all students – and the use of the vans to transport students to extramural activities during the Tirocinio. It seems that the Mobile; It seems that student participation in the mobile clinic is not mandatory.

Agreements have been made with cattle and swine farms where students go with faculty members or during their TIROCINIO accompanied by an academic teacher.. Numbers of animals seen by students during the 2011/2012 exits have been cattle 608, swine 615,

poultry 160 000 and equine 364. However, it is difficult to assess, how much of clinical training students can actually perform on those cases – or have they only seen them but not being able to have hands-on training. Also, it remains unclear how much of these numbers concern individuals and / or herds/flocks.

Field trips for bovine and swine start at 6 or 7 am in order to reach the veterinarian who is already at the farm and returning around 4-6 pm. If the trip leaves from faculty, it goes at 8.30 am. This all is considered as 'Field veterinary medicine' listed in table 4.1.9 but includes actually the TIROCINIO. There is no mention about emergency service for cows, swine or horses, which is in general not provided. However, extramural time spent during TIROCINIO in practice implies that students may be introduced to LA emergency service on a casual basis. Also, intramural practical teaching of propaedeutics on large animals has to be intensified.

### *Ratios*

When looking and calculating the ratios of the new curriculum, clinical work in the 4th year (Table 4.6.1) is done at the faculty 212 hrs and outside faculty 375 hrs (TIROCINIO) altogether 587 hours. So the main part is done OUTSIDE as extramural practise. This confirms the concern that the majority of clinical teaching is taught outside – and, further the concern of whether performance and outcome is sufficiently controlled by the faculty..

The same is true looking at table 4.6.2 of the 5th year new curriculum. Altogether 132 hrs are done in the Faculty and the TIROCINIO is 375 hrs outside faculty.

### **4.4.3 Suggestions**

The outline of courses lectured should be revised to a more modern approach. There is an overlap for instance in teaching of surgery under different courses. Lectures and courses taught could be reorganized by animal species, soft tissue and orthopaedic surgery and the diseases that are typical for each of the animal species (dog, cat, horse, bovine). Students would thus attain more relevant understanding of the diseases they face in practical situation, their symptoms, diagnostics, treatment and prognosis. Arrangement similar to the modern textbooks should be made. (Small animal surgery – soft tissue and orthopaedics; etc) .

Some textbooks (e.g. Cucinotta: Elementi di Clinica Chirurgica Veterinaria 2009; Genova) should not be used as primary textbook of modern veterinary surgery. There are several surgery textbooks available that have updated information for the students based on Evidence Based Medicine. Also some textbooks recommended for students for additional reading should be updated as new editions have been published on several of them.

The practicals related to the lectures should still more be focused on day-1 skills and practise of these on cadavers/slaughter material first, then on live animals at the farms and last on animals in practise.

The VTH is established for clinical training. At present, case load is not sufficient for students getting enough training for their day-1 skills. Therefore, VTH case numbers should be increased both in the small animal clinic in day and in emergency service. The hospitalisation service has to be better organised offering efficient care day and night and during weekends. These insufficiencies and problems, especially the low and yet inconsistent case load in the small animal teaching hospital, are being seen by the team as a **major deficiency**. We

believe that given the present trend, for evaluating the full and proper functioning of the VHT (small animals) at least 1—2 years may be needed

Also large animal clinical work should be instituted as soon as the building project is over. This is of utmost importance in order start the large animal clinical service for horses, cows and small ruminants even. The relative lack of in house practical teaching in large animals, combined with the non-existence of a functional large animal hospital (Hemicycle) is seen by the team as a **major deficiency**.

Reorganise the Mobile Clinic and make student participation mandatory for all students.

A TIROCINIO log-book or self-written learning book/leaflet is present but it should be filled in real time and checked by staff responsible, in order to give feed-back to the student – simply counter signing seems not always sufficient. Cases seen should be described and faculty member should check these and give feedback to students. In the log-book, also numbers of different cases and procedures the student has performed should be listed.

Emergency service hours should be visible – as well as the patient numbers seen in emergency service, in order to have an idea about the activities students see. The emergency service should be better visible for the public, and access should be facilitated, and better outlined. A basic price may be posted in the waiting area. The availability of the emergency service should be made public and local veterinarians should be contacted – a charter of collaboration and referral policy should be established and published. .

Practical animal work is still quite limited and hours calculated ULC translated to only three 8 hrs working days – and this without any emergency duties. The number of assigned ULC's in practical clinical work is still too low as in reality 1 ULC should be more than 25 hours of practical work because this translates to just 3 days of clinical exposure.

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

### **4.5.1. Findings**

As described in the SER there is a total of 335 hours to be taken by each student.

Lectures - 80 hours on “hygiene and technology of food of animal origin”, on “organization and operations in slaughterhouses and in food products plants” and on “microbiology of food of animal origin”; 72 hours on “inspection and control of fresh food of animal origin” and on “inspection and control of milk, honey, eggs and processed food”.

Laboratory and desk based work is 66 hours.

Non-clinical animal work - 42 hours of practical work with organs containing lesions from cattle, small ruminants, pigs and horses slaughtered at local abattoirs; with fresh fish and fish products, shellfish, poultry carcasses, meat products, milk and dairy products, honey and eggs.

Tirocinio – 75 hours of practical work per student at one of the Public Health Agencies in Sicily and/or the Calabria Regions.

A requirement for all students is to attend at least 70% of hours of in-class training in order to be eligible to sit for examinations.

During practical sessions a small group of students (15-20), under the guidance of university teachers, are taken out to visit several food processing plants, and slaughterhouses with which the faculty has official agreements, and fish markets.

Students (15-20) attend the Food Inspection laboratory of the Faculty, under the guidance of university teachers, on the following topics: food microbiology, HACCP procedures, inspection and control of meat, viscera, fish and fishery products, milk and dairy products, eggs and honey.

The Tirocinio is performed in regional slaughterhouses, milk and food processing plants, fish markets and public health offices where the supervision of the activity is guaranteed by State Veterinary Officers which are Contract Professors.

#### **4.5.2 Comments**

Teaching takes place in the Faculty and comprises lectures and practical exercises in year 3 and year 4. The students have a good perception of the relevance of the subject area and they have a competence at basic level in food hygiene and inspection 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 and at the processing plant visited, where students were attending, was of a very high standard and appears to be the norm. At slaughterhouses the students can check the animal welfare conditions during transport, unload, resting period and during stunning.

#### **4.5.3 Suggestions**

It was mentioned by students that the overall load of food hygiene teaching in the course is very high. Nevertheless, and considering the actual high quality of teaching in this subject we suggest that the volume must be maintained.

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

#### **4.6.1 Findings**

The following optional courses (9) have been offered to 5th year students during the year 2011-2012 as listed in SER p. 75 Table 4.2.1 (they are optional as topics to chose from but the ULC's acquainted among these subjects are mandatory).

- Canine and feline clinical sciences
- Livestock applied chronophysiology
- Pathological diagnostics of the birds
- Veterinary Physioclimatology
- Non-conventional animal physiology
- Horse sport physiology

- Gastroenterology of a dog and cat
- Diagnostic and necropsy of fish species
- Surgical methodologies applied to exotic and wildlife

These courses comprise 5-15 ULC and consist of only practical supervised training to students in old curriculum.

Students can also choose courses in UNIME or other universities – even abroad in foreign universities- to fulfill the study time requirements but this is seldom done – and may be related to language problems. Also Course work taken abroad must be accepted beforehand by Joint Teaching Committee (JTC) and thereafter by Degree Course Council. This sounds quite complicated and does not encourage students to go abroad. JTC is decisive about the option studying abroad.

The student may try to choose some optional courses but this seems to be very limited. Screening is done by Faculty committees if a course applied for ‘fits’ to the student’s curriculum – this is seen as quite strange and should be reconsidered.

#### **4.6.2 Comments**

JTC decides if a student can go abroad. This should be encouraged and maybe system changed. Too few students go abroad. Students should receive help and advice but in the end should decide herself/himself what optional courses he/she wants to choose.

Clinical competence is difficult to assess as the major part of clinical training is done outside faculty; assessment of skills acquainted extramurally is difficult and should be reconsidered.

#### **4.6.3 Suggestions**

Students should be encouraged to go abroad and take optional studies (clinical) at other universities. The bureaucratic hurdles when applying for studying abroad should be eased and students should receive all help possible do gain international experience (the same holds true for incoming exchange students, interns and residents). Plans going abroad should be finalized about 6 months beforehand, as 1 month is far too short a time to arrange travel, stay and other logistics. Stays of a minimum of 3 months in a foreign hospital/clinic should be arranged.

Many more optional, especially practical courses could be offered, especially in areas of specialisation (e.g. ophthalmology, dermatology, neurology, oncology etc.). This will be easier if VTH had more clinical cases.

## **5 TEACHING QUALITY & EVALUATION**

### **5.1 TEACHING METHODOLOGY**

#### **5.1.1 Findings**

The areas covering teaching methodology are described in the Self Evaluation Report, page 85.

The objectives of teaching are orientated to give the scientific basis and the theoretical – practical education for practicing the veterinary profession. Curriculum is a mix of innovative concepts (Tirocinio, clinical rotation, extramural work at farm, slaughterhouses, veterinary clinics etc) and some traditional ways of teaching (lectures, seminars, practical demonstrations, individual and/or small group wet laboratories). DVM curriculum is based on the principles contained in the “Bologna Declaration” (e.g. stimulation of self-learning, problem solving, team working) as well as on the learning outcomes as indicated by the “European Qualification Descriptors” (i.e applying knowledge and understanding, making judgements, communication skills and learning skills).

Learning objectives of each course are clearly stated on the web site of FVMM.

On the beginning of each course, most teachers indicate the recommended textbooks and/or refer students to a set of official class notes. Some teachers or departmental units also upload this and other course information on the learning management system.

Many professors recommend specific additional bibliography such as articles. Students are encouraged to use English language text books but students tend to rely on their hand written notes, official course notes and Italian textbooks.

After 2001, the University started a plan for the development of evaluation models and tools in order to improve teaching and learning at the University level. The project was aimed at assessing the degree of student’s satisfaction from lectures attended, examinations as well as their entire degree course. Teachers were involved in assessing their teaching skills through critically considering and evaluating the courses by the same students. Also teaching is assessed indirectly by CENSIS, which is an important foundation providing statistical studies. Plans for didactic or pedagogical training of staff has not been a part of this process and such courses are not described in the SER-report, nor reported during the team visit.

The assessment of student satisfaction is done at the University level and the survey is done with paper questionnaires, which are held at about 2/3 of the course duration. The anonymous questionnaires do not give students any possibility of personal qualitative remarks. The results are given to the teacher so that she/he can take note and have perception of his/her teaching. In order to make across-teacher comparisons, each teacher receives also average results of all teachers of the University/ teachers of FVMM/ teachers who teach students of the same year of the degree course. The teachers who are doing poorly on their job as assessed by the students may be called by the Faculty Head for a meeting in which the results of the evaluation of their courses is discussed. However, it is unclear if this program has had an effect. Poor performing in specific courses and/or teachers have been discussed in Joint Teaching Committee - according to junior staff, and the evaluation results have been communicated to Degree Course Council and Head of the faculty, but this has not lead to any relevant changes to the respective course teaching and

administration. Another indication of inappropriate quality control procedures in relation to course teaching is, according to students and specific teachers, that courses like rural economics and veterinary anatomical pathology both are credited with 3 UCL while the student workload for the former is estimated to be “one to two week-ends” (citation from personal meeting with students and teacher) and “6 months” for the latter.

Evidence that students have achieved their learning objectives is collected through mainly oral course examinations. Exams are held 6-9 times per year during course period.

No external evaluator is currently being used for these examinations, but an internal examination team of 2-3 teachers examine the student in the different areas of the course. Exams are public and usually attended by fellow students. Students appreciate very much both the oral form and the exam frequency.

At the clinic it is ensured that every student has hands-on experience or has seen needed demonstrations to perform certain tasks. This is done with the help of TIROCINIO logbook (Annex no 3). The logbooks list all day-1 skills which students are expected to learn. A supervisor has to sign the logbook next to each day-1 skills, when students have acquired it. Head of the DCC has to countersign the logbook once students have completed it.

SER 1 chapter 5, Teaching quality & evaluation, does not mention the amount of hands-on work, the amount of clinical cases per each student, 24-hours duty, acute cases, case follow-up or the amount of interaction with the clients. There is however, detailed tabulated data concerning the division and the balance between theoretical and practical teaching in Chapter 4 Curriculum. Table 4.1 page 61 shows overall teaching hours divided between different areas of training in the new curriculum (in use since 2010). Theoretical work consists of lectures, seminars and self-directed learning (2,381 hours) and practical work consists of non-clinical animal work, laboratory and desk based work and clinical work (1,748 hours), which equals to 60:40 ratio of theoretical versus practical training.

### **5.1.2 Comments**

Practical teaching hours have been substantially increased since 2010. More than 40 % of teaching is now practical exercises and hands-on teaching. To the benefit of students during basic science courses, the practical exercises are closely supervised by teachers and/or PhD students. This close relationship is very valuable and enables teachers to comprehend to competences of the individual students very well.

Some textbooks are outdated, although quite new, and contain irrelevant information (surgery).

According to students, there is no recommendation of any text book in Obstetrics, nor is there any written course material available, e.g lecture notes, power point slides or other course information that can guide students to obtain the necessary day-1 competences and help them in the preparation for examination.

Student work load in certain courses, e.g. rural economy and veterinary pathological anatomy does not correspond to the course credits.

Students and junior staff comments regarding passing rates and learning outcome of some basic subjects (statistics, physics) indicate that there is insufficient alignment between the

content and/or volume of these courses and the veterinary science fields they should support (see chapter 4 for more details).

According to the students, the university has been able to use the results of the student questionnaires as a helpful aid in improving teaching. However, other comments from both students and junior staff strongly indicate that negative course evaluations do not have any effect on course teaching. Furthermore, students cannot anonymously give qualitative comments, which could specify problem areas and qualify the actions to solve the problems.

There are no didactic and pedagogical courses offered to junior faculty, including Ph.D. students. Both Ph.D. students and junior faculty expressed the need for this.

Problem-based teaching is not evident in basic or clinical sciences.

The present last year students have 11 ULC (1 ULC = 25h) of clinical training during 5th year (modified old curriculum). In the new curriculum the amount of clinical training has been increased up to 30 ULCs. This is very positive development that will be of benefit for the students. However, students do still at present get limited real-life clinical exposure opportunity i.e. hands-on work, 24-hour duty, acute cases, case responsibility, case follow-up, interaction with clients, as several VTH services and the emergency duty have just been established and not stabilized. Case load in small animals is also still limited (1220 cases last year).

Substantial amount of training takes place outside faculty and the VTH; except for signed logbooks, no formal feedback or assessment procedures of students' learning are carried out. Clinical performance and clinical skills are not monitored at present by any practical assessment. (e.g monitoring and evaluation of student's clinical performance and clinical skills)

The on call duty (Emergency Service for small animals) started mid February 2013. Students receive the clients perform the initial assessment of the patient as well as all the clinical procedures listed on the logbook.

During the regular clinical training students work in groups of 4-7 which seems small enough (during the visit groups really were small enough and the student to teacher ratio seemed favourable). The amount of hands-on work depends on the case load, which has been limited to 2-3 cases per night so far.

### **5.1.3 Suggestions**

Newest and current textbooks should be used in teaching as reference material providing students the available information. English textbooks should also be used and students be acquainted into English language and terminology as English is the language of science and international continuing education.

Adequate study material for the course must be provided to students in all courses if no textbooks are available or recommended (obstetrics). This information should be uploaded on the university learning management system together with all other relevant course information (e.g. course notes, recommended literature, intended course learning goals, e-learning quizzes and videos etc.), so both in- and off course students can access it at any time.

Establishment of a program on university didactic and pedagogic courses for teachers, for instance in collaboration with the Medical Faculty and with assistance from Educational Sciences. Experience from many veterinary schools in Europe and North America show that proper research based teaching of faculty staff in university didactics and paedagogics enhance teaching and course quality, thus student's learning outcome and study progress.

Alignment of student's course load and course credits should be ensured either by adjusting credits or course content.

Adjustment of the course- and teacher evaluation system to allow for personal qualitative suggestions and comments is required in order to qualify evaluations.

In case of profound problems related to a specific course or teacher, the respective unit or teacher should be obliged to produce a written action plan for correction of problems. The plan must be approved by JCT / DCC / Head of department.

"First-day skills" are followed only by a logbook that also contains some irrelevant tasks, like putting a blanket on a horse. However, reflecting case-logs as well as assessment of practical skills should be part of examination and making sure of achieving day-1 skills. The logbook should be revised. Instead of using big topics (for example "clinical approach to a horse with colic"), more detailed skills (e.g. clinical examination, rectal examination, nasogastric-tubing) should be listed in the log-book. Also there should be a log of how many times the student has done these in order to evaluate the hands-on training – because it develops by doing things more than once.

"Day-1 skills" are assessed only by logbooks. However, reflecting case-logs as well as assessment of practical skills should be part of examination and making sure of achieving day-1 skills.

The logbook should also be revised. Some irrelevant tasks, like putting a blanket on a horse, should not be part of a clinical logbook comprising Day 1 skills, and a other specific and important clinical skills like clinical examination, rectal examination, naso-gastric tubing should be listed in details instead of the used broad terms "clinical approach to a horse with a colic". In order to be able to evaluate student's the hands-on training, the logbook should also allow quantification of the skills, i.e. how many times the student seen/done these, as well as allow qualification of the student's skills, i.e. "has observed", "has performed under supervision" and "has performed independently" ..

## **5.2 EXAMINATIONS**

### **5.2.1 Findings**

The DVM degree is achieved through the acquisition of at least 300 credits and the passing of a final exam, which consists in the dissertation of a thesis. Each teacher can choose the modality of examination which must be presented and described at the beginning of the course. The exam format has to be approved by the DCC. Examinations are held in three sessions during the academic year. Dates of two consecutive exams within the same session should be at least 14 days apart from each other. Special sessions are also held during the academic year based on students' request but only in the afternoon to reduce interference with concurrent courses.

The examining committees must be composed by at least three teachers, one is the teacher officially responsible for the course and the others belong to the same or a similar discipline. There are external examiners only when a subject is taught by an external teacher. There are no limits a student can retake an exam.

The admission to examination is regulated and there is a list of the propaedeutics exams for which students are required to have completed to be admitted to subsequent course.

Most exams are oral, with the clinical exams having a practical part but knowledge assessment is still oral; this, of course opens increased possibilities for subjective and biased evaluation. Nevertheless, all students interviewed stressed that they are used to this system and do not wish any changes, in any case no multiple choice format exams.

### **5.2.2 Comments**

It was difficult to identify the examination structure, because during the academic year there are 3 sessions and the special sessions on the requests' students. This is a huge extra load on the staff which may well conflict with teaching commitments.

### **5.2.3 Suggestions**

There should be a review of the entire examination procedure and structure in order to concentrate the examinations in 2 sessions; one at the end of the first semester (January-February) and the other at the end of the second semester (June-July); end with the special sessions on student's requests. The exam structure should be reviewed. Although oral communicative skills are an important part of the veterinary professional skills, outcome assessment relying entirely on oral exams bears many disadvantages such as relative low reproducibility and validity and the inability to test students' ability to communicate short precise professional records and statements, which is also an important professional skill. Therefore, introduction of more objective means of student evaluation and assessment on selected veterinary science courses is suggested and at the same time put more focus on outcome assessment of final year students must include Day-1 skills. Introduction of an OSCE – 'Objective Structured Clinical Examination' system, as done at University of Padova is one international scientifically recognized way of evaluating practical and problem solving skills of students.

Develop a combined quantitative and qualitative system to monitor student performance in individual exam, and ensure that actions are taken when failure rates and/or complains become unduly high or inexplicable.

The legislator should be made continuously aware that the acceptance of re-taking examinations without limitations is counterproductive in terms of overall academic quality, outcome and in the end is also uneconomical.

## **6 PHYSICAL FACILITIES & EQUIPMENT**

### **6.1 GENERAL ASPECTS**

#### **6.1.1 Findings**

The Campus is located 5 km from the city centre of Messina and includes d the faculty of Pharmacy and the faculty of Arts and Humanities.

The Department of Veterinary Medicine (FVMM) is located in modern buildings 5 km from the center of Messina. They offer spacious accommodation for all purposes of teaching and research. The building complex is composed of a central building which houses all units institutes and the administrative area in two large wings which also house lecture rooms, laboratories, anatomy dissection and necropsy rooms. At the end of the wings the Small Animal Teaching Hospital is located. The large animal hospital facilities are not functional at present except for a large semen collection room and a treadmill. However, a new large animal teaching hospital (“Hemicycle”) has been planned and funded and with it an isolation unit for large animals will be established.

Finally, simple large animal farm facilities are situated within campus around 200 meters from the main building

The different departmental units (e.g. anatomy, biochemistry, physiology, pharmacology, fish pathology, parasitology, microbiology etc..) located in the main building are all well equipped, with sufficient laboratory space, microscopy rooms, computer facilities, library and study areas for both teaching and research purposes. Units like Animal Production and Nutrition have in fact state-of-the-art equipment and are ISO-certified centres of excellence.

The anatomy dissection hall and the pathology necropsy are sufficiently equipped for work on fresh or fresh/frozen small animal cadavers and specimens weighing less than 50 kg. However, in-situ topographic anatomy session or necropsies on large animals are not possible. There is no hoist, the ceilings are too low and the refrigeration capacity is too small. However, adequate number of freezers and cool rooms are available for the present teaching load.

An animal necropsy room is planned as a part of the new hospital (“Hemicycle”).

Laboratories are also serving public, although the number of samples investigated are quite small or even minimal in some: Parasitology (around 500 samples), microbiology and infectious diseases diagnostic service (500 samples), anatomical pathology diagnostic service (230 samples), clinical chemistry diagnostic service (around 1000 samples).

The new veterinary teaching hospital contains rooms, materials and equipments necessary for small animal consultation, medical imaging (includes digital radiography, modern ultrasound equipment and a Spin-Cat-Scan), and medicine & surgery (includes state of the art endoscopy equipment). However, no veterinary nurses / technical support staff are employed.

The animal farm facilities are very simple, consisting of a single building an a few surrounding paddocks used for grazing and student’s presentation and handling of the animals (approximately 1 hectare of land). The farm is situated just 200 m north-west of the campus. At present the barn house holds a small number of horses (for reproduction

purposes) and few bovines, all in relative poor conditions. Building plans to enlarge and improve the farm facilities have been approved and necessary funds have been assigned by the University; building plans have been submitted to the Offices of the City. There is reasonable expectation that the building will be authorised by the end of 2013.

Technical support staff on the farm consists of one person only.

Appropriate measures for bio-security and bio-safety during on-campus teaching are assured in laboratories, dissection and necropsy halls, seminar rooms and auditoria: First aid kits, fire extinguishers, eyes wash and, security showers are available everywhere in the appropriate locations.

Disposable suits and shoes are available, where appropriate. Nevertheless, at the teaching farm and in the necropsy area, rubber boots and additional protective clothing should be made compulsory / available.

Waste management from laboratories and anatomy / pathology halls is appropriate.

Overall, health, safety and well-being of students seem to be well taken in account. Furthermore, within the campus there is a first class sports centre available for student and staff use, housing an all-year open Olympic size pool and other amenities.

A university restaurant and cafeteria are also nearby.

Extra-mural facilities are widely used for teaching clinical, animal production and food inspection subjects. A fair number of bovine, equine, swine, poultry, sheep farms and veterinary practices has been contracted by the faculty for teaching purposes with the help of the local practitioners. Many of these extra-mural facilities are located quite far from the veterinary faculty, i.e. around Sicily, in Calabria and even in Rome.

Slaughterhouses and feed factories are also contracted for teaching purposes as far as 60 km or more from Messina.

Usually, students have to take their own car to participate in the compulsory extra-mural activities, as the Department does not have suitable student transportation. Students are apparently not always reimbursed for the travel expenses occurred.

### **6.1.2 Comments**

The inexistence of a functioning large animal teaching hospital entails a number of problems such as insufficient number of patients, insufficient numbers of large animals for pathologic anatomy teaching, inability of practical teaching of bio-safety measures and avoidance of disease spread in large animals (lack of isolation unit). We have seen building plans and financing seems assured; however no date for beginning of construction has been set. This complex of connected insufficiencies is seen by the team as one **major deficiency**. There is a reasonable chance that once the hospital is fully functional, all interconnected insufficiencies will be solvable,

The existing extramural teaching cannot fully replace the lack of a faculty teaching hospital; this situation is aggravated by the relative difficult accessibility to outside facilities because of the substantial distances and the scarcity of adequate vehicles for student transportation.

Efficient drugs against pain (opioids kept in a closed place) are not available at any time for the treatments in surgery or the emergency service. This seems to be an organisational problem and seems also linked to low case load and the apparently rare occasions that such drugs are being needed, however, this is a serious problem especially for emergency cases.

### **6.1.3 Suggestions**

Building and rendering functional the large animal teaching hospital with all annexes such as hospitalisation and isolation services, necropsy rooms must be first priority of FVMM, which in the opinion of the team is a *conditio sine qua non* for reaching the European standards required.

Building plans of UAF have been approved and financed by UNIME in the last December 2012 (see Annex 6); all documentation has been submitted to the Office of the City in the last February 2013; therefore, the small faculty farm should be enlarged and the building plans should become reality by the end of 2013. This means that the faculty will be able to house an increased number of horses and food producing animals for improved teaching of propaedeutics and animal husbandry.

FVMM should negotiate a better agreement for cooperation with the Experimental Zooprophyllactic Institutes of the region to improve student exposure biologic materials to large animal carcasses for necropsies and for cooperation on research projects with the faculty, in general. .

An additional minibus should be made available (with the help of partnership or sponsorship, private companies, public sources), to transport small groups of students to external facilities (farms, slaughterhouses, feed factories,...)

The pharmacy in the VTH must be organised and administered better also for the reason that potent analgesic (opioids) must be available and accessible 24/24.

The exterior walls of the small animal teaching hospital are in a deplorable state of decay and should be restored as soon as possible (together with building of the large animal hospital).

## **6.2 CLINICAL FACILITIES & ORGANISATION**

### **6.2.1 Findings**

The VTH is located on the north side of the main campus building and consists of a rectangular SA clinic 2000m<sup>2</sup> and an unfinished semi-circular large animal hospital building 'Hemicycle' (500 m<sup>2</sup>) with pathology unit which is all still under construction. NW from faculty is University Animal Farm (UAF). The premises and buildings with various laboratories are very spacious. The faculty does not pay any rent for the space it is using.

Clinical services are provided by VTH providing teaching for the students as well as research material for academicians and functions have started only a year ago. VTH is divided in surgery, medicine, reproduction, pathology and diagnostic imaging. VTH provides services on companion animals (meaning small animals: dogs, cats, rabbits, reptiles, birds etc) on various fields. Some staff members operate on more than 1 speciality field (SER Table 6.19)

Medicine unit – small animal internal medicine, cardiology, nephrology, neurology, urology, US, and ophthalmology services - 9 staff internists operate the unit.

Reproduction unit – gynecology, obstetrics, andrology, artificial insemination, semen collection and freezing – and this is also for large animals, although patients are few. 4 staff theriogenologists operate the unit.

Surgery unit – small animal orthopaedic and soft tissue surgery has 4 staff surgeons

Pathology unit – small animal autopsy, cytological and histopathological diagnostics – 2 staff members

Diagnostic imaging is operated by 2 staff members in medicine, 2 in surgery and 1 in reproduction.

Some Ultrasonography- scans and endoscopy equipment is reserved for student use.

All equipment is listed in Table 6.20. SER p.117-8. Basically the hospital of small animals has all the necessary spaces, instruments and functions of a modern unit.

Anaesthesiology service has 2 staff members in surgery. Latest resources are Clinical biochemistry by 2 staff members, endocrinology by 2 staff members of physiology and service; two staff members of the Animal Production unit provide services in pet nutrition and diet counselling and Genetics.

The clinical laboratory has been opened only last year and has all the necessary equipment for CBC, profile and other samples analysis.

There is also room in the main building for equine exercise laboratory, used mainly for teaching and research purposes. No services are being provided routinely for the horse owners in this respect. That is, the treadmill is owned and used by the physiology unit for teaching and research but is not used as clinical tool for diagnostics (airway, cardiovascular or locomotor diseases)

There are no Diplomates in the staff, therefore no residency programs are instituted at the present time and specialisation on a higher (College) level is still missing. There are new services mentioned to be planned in near future (SER p. 115) – but no mention what they actually will be.

Emergency service in small animals has just started operating less than 1 month before the visit. It is mentioned in SER p. 121 chapter 6.11 that also large animal emergency service will start on Feb 4, 2013. However, no large animal emergency duty has been established at present due to lack of the premises.

These insufficiencies have already been noted during the last EAEVE evaluation more than 10 years ago, showing unfortunately, that developments have been very slow or on occasion stagnant

The Mobile clinic is not fully functional the way SOP is describing such service for practical teaching in the early clinical semesters, also because student participation is not mandatory.

There are several shelters of dogs/cats which animals could be available for teaching purposes, however, establishing collaboration agreements has been slow. Using shelter

dogs dying there or having been suppressed as necropsy material, this has just been instituted recently (SER p. 145) and a similar agreement has been established with a bovine farm. However, by law and as a public health measure (BSA identification and prevention), state veterinarians have to do post-mortem examinations on all bovines dying on farms, if they are over 4 years of age. Universities are not allowed to perform such necropsies nor are they allowed to organise transportation of such carcasses to the faculty premises.

The University Animal Farm with its animals housed there are used in teaching. The facility is also used in animal ethology and animal welfare teaching. Also the Helen Keller dog centre, and the Ovo Farm, Ramacca are mentioned in the same context (SER p.103).

There are currently 6 cows, 4 sheep and 10 horses stabled at the FVMM farm . Also some dairy cow and horse owners bring their animals to VTH for reproductive examinations. These are performed free of charge in order to provide teaching material for students.

Laboratories of basic sciences are overall well equipped for research and diagnostics. In the equine Treadmill Room, a “Kagra Mustang thread mill” is available for teaching of locomotion and for research; this excellent facility could be put of good use for clinical cases for horses; however at the present time it is not.. The treadmill is run within the Physiology unit. Clinical horse cases should be increasingly examined on the tread mill for instance for exercise intolerance or for upper respiratory problems. Modern endoscopic equipment, radiographic and ultrasonographic equipment are available in the clinics. An MRI is being envisioned.. Some more advanced diagnostic tools are available as well e.g. in reproduction unit.

### **6.2.2 Comments**

VTH premises are listed on SER p. 108. They are well designed to serve the needs of teaching and of patient care in small animals. Plans for finishing the buildings in the Hemicycle (Large Animal Hospital) and its last construction seem also very feasible and well-planned. All the necessary missing functions are in plans and are well drafted. According to the rector, financing has been assured (> € 2 million).

Many functions especially on clinical side are just established or being still planned (small animal hospital, 24 hrs Emergency Service, Intensive Care Unit, Hospitalisation services). Suggestions made in previous evaluation over 10 years ago have been either partially fulfilled or have been implemented just weeks before the present on-site visit..

Post-mortem pathology services (autopsies) are low in small animals and non-existent in large animals.

On the faculty farm improvements through building plans supposedly will materialise soon. Land is about 40 hectares, where are animal shelters and stables as well as paddocks. Animal breeding centre (ABC) and Pet Therapy Centre (PTHC) uses these premises too. UAF has. New structures for breeding cattle, sheep, goats, horses, rabbits and poultry are being planned (fig. 6.3 SER p. 110). ABC is managed by the reproduction centre and has 10 boxes of 12 m<sup>2</sup> each and a barn, covered area for horse stocks and a small outside area. PTHC has 2 units; one for small animals like fish, rabbits, dogs, cats) and other for assisted therapy in horses. There are 3 therapy rooms for small animals. The therapeutic riding (PTHC) has 6 boxes and a covered area nearby.

There is only 1 full time animal care taker working at the farm and students work there in groups of 4/day on a part-time plan.

### **6.2.3 Suggestions**

To fulfil EAEVE standards, the large animal hospital must be built, completed and rendered functional as soon as possible. Active recruitment of staff and nurses as well as patients must be also done.

Tread mill room should be used for clinical equine cases of exercise intolerance as well as upper respiratory problems. Endoscopic examinations during tread mill exercise should be started to improve diagnostics.

Large animal isolation unit is necessary for emerging zoonotic and infectious diseases (salmonella, influenza, West-Nile virus etc.) and should be built as soon as possible and in any case should be functional as soon as the first large animal patients are admitted.

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

### **7.1 Findings**

FVMM has many sources for animals and animal materials. Sources of dead animals and material are listed below:

- Slaughterhouse Barcellona Pozzo de Gotto. They get organs, limbs and heads of horses. The amount of biologic material has increased from 1424 kg in 2010 to 1734 kg in 2012.
- Dead small animals from VTH and contracted shelters
- Birds from AVIMECC Spa,
- Sea animals form CISS.
- Exotic animals and Wild animals from EWAC center (Exotic and Wild animal Clinic). This center has agreements with a number of other institutions for EWAC services. This is zoos, Recovery center of Wildlife Zoo etc.
- In the academic year of 2012 were performed necropsies of 1 cow, 19 calves, 21 small ruminants, 2 adult pigs and 9 piglets, 1 horse and 1 donkey, 57 dogs and cats, 10 rodents and lagomorphs, 200 poultry, 250 fish and 29 wild exotic animals. This is three times as much as in 2010.
- Skeletons and bones .The Veterinary Teaching Museum has a large collection of bones freely available for the students.

Live animals for teaching purpose are coming from:

- VTH of FVMM. The caseload has risen from 3845 in 2010 to 4672 in 2012, see table 7.6 in SER1. However, this number includes animals seen at the VTH (approximately a third of the above numbers) whereas the remaining 2/3rds are the case load seen in the contracted extramural clinics.
- Teaching animal farm. Here are is small number of cows, horses and goats (20 – 25 together). These animals are used for clinical examination teaching, physiology teaching among other topics.

- FVMM has formal agreements with many farms:
  - 9 farms with dairy and beef cattle. The number of animals on these is 2475. There have been 45 visits and examined 616 animals in 2012.
  - 1 poultry farm, AVIMECC. There have been 3 visits in 2012 and done 150 examinations.
  - 2 swine farms, Azienda suinicola Cipolla and S. Ilario Jonio. There have been done 27 visits and examined 680 animals during 2012.
  - These visits are performed under supervision of faculty staff or contract Professors (practioners).
- Other Municipal Shelters have informal agreement with FVMM. Students do practical work on these sites.
- Guide Dogs for the blind Helen Keller Regional Centre
- Ovo Farm, Horses

R16, caseload pets, shows a denominator of 0,06 (this number is wrong in SER (43,46). R12 and R13, clinical caseload livestock/herds, have denominators 20.4 (7,35) and 1,92 (0,307). R 18 is necropsies of food producing animals and equines. Denominator 0,32 (0,998). R20 gives necropsies of companion animals. Here is the denominator 0,685 (14,98). The average values of denominators in European Veterinary Faculties are shown ( ).

FVMM has adequate fresh frozen and thawed material for anatomy teaching. Whole carcasses of dogs and cats are seldom used for anatomy teaching - large animals never – only body parts of them are used Material prepared for microscopy are fixed in formalin.

During the last three years there have been done necropsies of in average 75 poultry/rabbits yearly, 3,04 equines/food producing animals yearly and 41,6 companion animals yearly(R16). There have been on average 60 students graduating the last 5 years. The ratios (R between students and necropsies is below recommended values for all categories of animals.

For teaching of basic science (except anatomy and pathology) there is an adequate amount of animals and animal material for teaching

The team believes that the students receive good training in slaughterhouses. The training in food hygiene is also satisfactory. There are enough materials of animal origin for training.

## **7.2 Comments**

Almost no large animals are available for anatomic dissection and for necropsy. This due in part because of the Italian regulations (legislation) regulating transport and autopsies of horses and bovines dying in the field but the main reason is the lack of a large animal hospital. There are also no demonstrations of large animal topographic anatomy such as “situs viscera”.

The number of small animal necropsies have somewhat but not sufficiently increased after the necropsy room was finished. The room seems very functioning.

The ratios mentioned above show that there is notably less caseload than in the average approved European faculty.

### **7.3 Suggestions**

FVMM has to raise the caseload of large animals, mainly equine and bovine. This is important for teaching in both clinic and pre-clinical studies. But not only, at this time there have also been insufficient numbers of patients, hospitalisations and carcasses of small animals.

The team strongly recommends that the FVMM and EZI have a formal agreement on necropsy of large animals.

Large animal necropsy serves diagnostics of patients that die or are euthanized in the large animal clinic. Mobile clinic should be function on a regular basis with planned exit daily during clinical teaching periods; this service should also be instrumentalised for recruiting in-patients for the large animal clinics.

As interims solution and for propaedeutics teaching, bovines and even horses destined for slaughtering can be bought stabled for a short period while used for teaching purposes in order to provide more hands-on training on rectal examinations, naso-gastric tubing, ultrasonographic examinations, lameness diagnostics etc.

## **8 LIBRARY & LEARNING RESOURCES**

### **8.1 Findings**

The areas covering library and educational resources are described in the Self Evaluating Report page 149.

The FVMM is under control of the central library of the University of Messina Library System which is linked to the National Library System. Total library resources are approximately 10,000 books, current scientific journal subscriptions are online (37 in Veterinary medicine). In general, 3 copies of each textbook are available for the students. Some of the veterinary textbooks are older not-up-to-date editions.

The main library is equipped with 18 study/reading places and 56 computer stations. The visitors can access Internet via computers or by using the wireless network inside the building. Access from home via internet and password is available for each student. The library is open from 8:15 am to 5 pm every day of the week. The library is closed on week-ends, for 2 weeks in August, for the Christmas week and other national or religious holidays. There are numerous satellite libraries in the different departmental units, which function mainly as study rooms for the students and deposit areas for various books and journal related to research activities. Satellite libraries are open from Monday to Friday from 8.15 am to 6.00 p.m. The main library will hold a backlist of books available in the subsidiary libraries.

There are 3 staff people working in the library, who like all employees work 36h/week, each. The library also hires students as part time workers.

Training for students to retrieve bibliography is not organised on a formal level but tutoring is done on an individual basis when need arises.

e-book acquisitions and electronic access to periodicals is under development.

## **8.2 Comments**

In the future the use of e-books will be possible; this will save the students and professors money, also there will be an increase of texts available to all.

## **8.3 Suggestions**

Affix in the library a box where students can leave (also anonymously) comments and suggestions for improvements such as opening hours, requests for books and journals and any other suggestions

# **9. ADMISSION & ENROLMENT**

## **9.1 Findings**

In Italy a 5-year upper secondary school diploma is a pre-requisite for admission of students and to be enrolled in Veterinary Medicine (Maturità, bacalaureat). In addition, they must pass a national admission exam prepared by the Ministry (MIUR), which is common to all faculties of Veterinary Medicine. This exam is composed of 80 multiple-choice questions covering the following subjects: general knowledge (23 questions), biology (20 questions), chemistry (25 questions) and physics and mathematics (12 questions). The passing score of this exam is the decisive factor for admission. There are no individual admission interviews. The MIUR determines the total number of students for the Veterinary Medicine Degree Course and then assigns a specific number to each Degree Course (to each of the 13 Italian veterinary schools). The number of students admitted is proposed by the Department Council to the Academic Senate, which depends on the teaching potential available in the faculty. We have no reason to believe that there are any inequalities regarding gender, disabilities or financial background regarding admission to the course.

## **9.2 Comments and suggestions**

The actual process of recruitment tends to select students on their learning abilities rather than on true motivation to become a veterinarian, so students who may have the potential of become very good veterinary professionals might be eliminated. Furthermore, the admission test focuses on basic science knowledge, while international linguistic skills (e.g. English language skills) are not prioritized even if these are important for future global development of the veterinary field.

## **9.3. Suggestions**

The examination procedure for admission should be better adapted to the needs of veterinary sciences. Evaluate whether an additional personal interview should be performed before the final decision on admission. Also, early and full information on the prospects, outlooks and economics of all facets of the veterinary profession should be delivered to applicants for admission, prior to being admitted or prior to sitting the admission test. This should be done nationwide and in collaboration with MIUR.

## 10 ACADEMIC TEACHING & SUPPORT STAFF

### 10.1 Findings

Ratio of teaching staff versus students R1 = 8.547; Ratio of teaching staff versus support staff R5= 6.098

All staff appointments and staffing levels are decided centrally in UNIME, Academic Senate and Administrative council. Any position must be applied for and justified for in an application process. Academic staff is composed of full professors and associate professors as well as researchers (“ricercatori” assistant professor equivalent). Tenure is usually acquired after 4 years. Researchers do also teach. Academic posts are assigned thru public national search processes. Salary increases are automatic based on time elapsed and seniority and in general not linked to performance. Academic Senate and Administrative council decide on recruitments. Annual allocation of ordinary funds is also dependent on how many professors retired the year before, because replacement is usually not authorised; thus, only 50% of this salary money comes back to faculty, 20% is kept in Academic senate for recruitment plans and 30% is assigned to faculties with a recruitment policy based on specific ministerial indexes. The criteria for these allocations are usually based on ULC credits of various disciplines plus research achievements. For full professors, criteria are 30% of research results, and 70% for their teaching needs. For associate professors, criteria are 50% on research and 50% of teaching and assistant 70/30% respectively. In this new system, more transparency is hoped to be achieved.

Percentage of staff who are veterinarians:

Academic staff is 66: 19 full professors, 21 associate and 26 assistant professors. Of these 50 are veterinarians and 24 are non-veterinarians (Table 10.2 SER p. 168) e.g. roughly 75% are veterinarians, although the SER says 89.5% are veterinarians (SER p. 171)

Ratios R1 is adequate (8.547 – required 8.832)

Ratio R2 is 6.098 (9.619)

R3 is 10.989 (11.389)

R4 is 0.971 (2.203)

R5 is 1.791 (0.558)

Teaching staff to student ratios are very favourable and above the average. There is currently almost 1 academic teacher per students which is excellent. As there are 100 students currently on the 5th year and only 19 on the 4th year, the students are getting really good individual practical teaching. As student numbers will continue to decrease, as decided by Italian government, and the annual intake of new students is 60 students max, total number of students in few years will be around 300 instead of the current 687, which will further improve this ratio.

There is however a definite shortage especially in recruiting young academicians. Recently, after long negotiations, 4 new veterinary practitioners were hired to do 24/7 emergency duty in VTH.

When professors retire, replacement in general is not permissible (economic reasons) and potential dangerous lacunae in teaching and in continuity may arise

Also support staff has decreased due to retirements and is practically impossible to be replaced. Apparently, an increase of technical support staff is out of the question. However, opening of the VTH has increased the need of support staff and finishing the large animal hospital will increase this need. Also special functions like isolation and large animal necropsy, will need specialized support staff who also is aware of and trained for bio-security and bio-safety measures.

Contract professor agreements can be valid for 3 years and there is 1 month time to stop the agreement. Teaching staff can be contracted even on an annual basis (contract professors) by agreement with Faculty Council but by law, apparently it is NOT possible to employ academic staff from service income. This is very demotivating for the development of services in VTH. Intern and resident programs may therefore have difficulties to evolve.

Support staff is working 36 hours per week. Support staff can be hired from VTH revenue if the balance is positive. However, revenues are not in the positive numbers and cannot be positive unless substantial and centrally piloted efforts are undertaken to increase case load and service load in VTH and specimen in diagnostic laboratories

Staff can move and be reallocated within the establishment. This will become relevant as intake may decrease during the next 4-5 years and reallocations must be made. When hospital functions are developed further, it will be very necessary to hire or relocated support staff as nurses in the VTH. Future hospital nursing staff should have undergone training and formation at the veterinary nursing school in Cremona.

Senior teachers can also take sabbatical leaves without salary but it must be accepted by faculty and it must have a specific purpose (doing research, international experience).

The posts which become vacant are not automatically filled. Certain staff can be flexibly deployed i.e. for clinical services as there are currently no nurses working in the VTH.

The establishment encourages staff to acquire additional skills and training but they have to show initiative for that.

The establishment can suggest staffing levels but cannot decide these on its own. Academicians and PhD students are allowed to travel abroad for training and continuing education or research. This is supported.

Open public search and criteria are being used for employment of senior level teaching staff. The need is based on ULC of discipline as well as research allocations that are relevant.

Searches for professor positions are not internationally advertised.

There is no College Diplomate on staff and consequently residency programs are absent; there is no internship program running either.

There is no formal or organised training in didactics available, especially for junior faculty.

## **10.2 Comments**

There is a definite need for more support staff in VTH, especially as functionality will improve and case load increase. Currently there are no nurses at all working in the clinic environment. Animal caretakers are different from veterinary nurses who are trained for hospital nursing care and functions; trained nursing staff will also be involved in undergraduate teaching.

Reallocation of staff must be done as student numbers will decrease and functional emphasis will shift to the clinical sector..

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

Support staff can be hired from revenues on VTH. A clear charging system of services of VTH must be created and followed. At present balance is negative. Also those animals treated free for teaching purposes must be in all transparency recognizable..

Clinical specialisation is essential and the European/American College system is the backbone and sets the standards for specialisation. College specialists must be among the teaching staff of any European veterinary school striving to offer services and teaching better than below average.

## **10.3 Suggestions**

Salaries of academicians should be increasingly based on teaching merits as well as research merits and productivity (clinical services). Likewise, clinical specialists and Diplomats (in the future) should be paid salaries commensurate within their high expertise.

Service revenues and VTH budget must be transparent. It is very difficult to make VTH as money making unit without a transparent income statistics of each service and a long-and short term business plan.. Staffing for the VTH especially the new large animal clinic must therefore come in part and initially from internal reallocation of the posts. The technical staff, at least is aware of this kind of possibility and necessity. Trained nurses are mandatory for the appropriate functioning of the hospital to help veterinarians with patient care and students with teaching and advising.

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

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

Residency training programs according to European College standard should be planned and instituted as soon as possible; the condition sine qua non, however, is the regular employment of Diplomates in different specialities. This has to have top priority in academic planning.

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

## **11 CONTINUING EDUCATION**

### **11.1 Findings**

FVMM has CE in the objectives. Since the year 2000 all veterinary practitioners in Italy are obliged to participate in CE. They have to follow a program called Continuing Medical Education and have to acquire at least 50 learning credits a year.

In Italy CE courses are offered by the Ministry of Health through providers or by the larger private veterinary organisation (e.g. SCIVAC, IVPA). FVMM is a very valued provider of CE activities. FVMM has been very active through the last four years in organizing continuing education courses. There are organized/held 51 courses with 584 credit hours of education. The number of participants has been 5067. FVMM teaching staff is also involved in CE initiatives offered by other organizations.

In table 11.1.1 the courses from 2008 to 2012 are listed (number of events/hours in parentheses). The topics have been small animals (6/278), production animals (7/71), food hygiene/safety (4/16), equine topics (5/19), fish (2/6), animal behaviour and welfare (4/68), other topics (13/118)

According to the described activity the courses are aimed to a broad spectrum of practising veterinarians.

### **11.2 Comments**

The FVMM exhibits high activity in the CPE field. There are arranged many courses in a broad spectrum of veterinary medicine. The number of participants in these courses is impressive. The economical effects (potential revenue) of this activity remains unknown, however.

The team reports that the requirements to CPE as they are laid down in annex 1 of the SOP are completely satisfied.

### **11.3 Suggestions**

We suggest that FVMM develop their courses also to include distance learning via internet.

This will also give the opportunity of additional income to the faculty or the CPD providing units.

## **12 POSTGRADUATE EDUCATION**

### **12.1 Findings & 12.2 Comments**

At the University of Messina (UNIME), the Faculty of Veterinary Medicine (FVMM) offers the following postgraduate educational programmes:

- PhD in Applied animal experimental science
- PhD in Equine Physiology (Experimental and Applied)
- PhD in Public Health, Veterinary Hygiene and Animal Production
- PhD in Science of fishery products and poultry species
- PhD in Veterinary Medical Sciences
- Research grants and Post-doctoral scholarships
- Postgraduate Specialization School in “Inspection of food of animal origin”
- Postgraduate Specialization School in “Rearing, hygiene and pathology of aquatic species and the monitoring of by-products”
- Postgraduate Specialization School in “Physiopathology of Reproduction of Domestic Animals”
- Postgraduate Specialization School in “Pathology and Clinics of companion animals”
- Master Course in Pet Therapy

But there are no internship or residency programs at the veterinary faculty of Messina (see also comments and suggestions in Chapter 10) .

There is only one professor (parasitology) who is an associate member of the European Veterinary Parasitology College; his assistant is involved in an alternate residency training program which is viewed very favourable by the visitors.

Curiously, there is an entrance test to become a graduate student, and to enter the PhD course, which lasts 3 to 4 years.

The graduate student writes a report every year, under the supervision of a tutor, which is examined by the Teacher’s board. They have to publish their studies and research. The board decides if the student can or cannot continue the PhD course. We did not find any minimum of publications, but the Teacher’s board can decide if the quantity and/or quality of publication is sufficient for presenting and defending the PhD thesis.

### **12.3 Suggestions**

Developing rotating internship programs

Developing residency programs

Attracting more teachers and incitation for any programs certified by the European Board of Veterinary Specialisation (EBVS).

## **13 RESEARCH**

### **13.1 Findings**

UME Faculty of Veterinary Medicine has extensive postgraduate research programs (13 different educational programmes) and also many outstanding research groups working in Faculty and substantial amount of research money also have been generated. Especially Applied Animal experimental science, Equine Physiology, Public Health and Veterinary hygiene and Animal production as well as Fish and Poultry sciences and Veterinary medical

science have altogether 72 PhD students enrolled in year 2012 by SER. Twenty research grant PhD positions have been available and 13 graduates have finished during last 10 years. PhD program lasts for 3-4 years. Students are selected thru an examination process and annual grant is 13 700 Euros per student paid by UNIME and the ministry. Students may be admitted also with external grants or without grants. Students must do 60 ECTS credits per annum. There are also PhD courses in collaboration with several foreign universities.

Undergraduate students are expected to be involved in research in their final Thesis project of 15 ULC, 8 ULC for the project itself and 7 ULC for English language. In the new curriculum dissertation is a total of 8 ULC.

All students do their projects in different laboratories in Faculty or various outside places; for that it has to be applied one year ahead of time. Final paper can also consist of comprehensive literature review instead of research but majority of students elect a research based dissertation. Students are free to choose the topic from the ones the supervisor has suggested.

The Faculty has some members doing extensive and high-power research with substantial amount of received research funding (from EU etc.) on many fields such as animal production, food hygiene, parasitology etc. There is sufficient use of these existing research programmes to introduce undergraduates to the various research topics. Many students do the research project as their final thesis and they function as a model to other students that follow. This is seen as a very positive sign and it also develops these areas further. Also, the future of the faculty lies partly on these successful PhD-students as they may find permanent employment as assistant professors ("ricercatori").

Research is fragmented as there are many various units of the faculty with specific topics, interests and tasks as well as collaborations with outside partners. Research activity is wide and papers are encouraged to be published in international refereed journals. Substantial amount of research activities were introduced to the team during the visit. Due the economic situation, research funding from public sources has diminished substantially during 2012.

## **13.2 Comments**

Several theses were introduced in different units to the team during the visits. The amount of research performed was impressive. Also several PhD students who work in different projects in different units were met. There is a very positive and fruitful atmosphere within the faculty to support research activities. PhD-students also go actively abroad for shorter and longer periods and this is supported by the faculty. Active research atmosphere is greatly appreciated by the team.

The knowledge of English language was surprisingly low both among the professors, university teachers and the students. This made communication sometimes problematic and interpretation was often needed. Continuing education and attending foreign meetings and congresses may be influenced also negatively by this language issue.

There are several (4) postgraduate specialization programmes also available in UNIME, as well as one year long Master course in Pet Therapy which is available also for graduates from other faculties of UNIME; Medicine, Law, Arts and Sciences, Political Sciences etc.

which is seen as an enrichment. Students write a dissertation, 15-50 students are admitted and tuition fee is 1000 Euros.

The research activity in clinical sciences is modest at present, like in many other universities. There are no internship or residency programmes running currently and no funding for them. Such programs would enhance clinical research as residents have to perform and to publish research (in English) as integral part of their programs.

### **13.3 Suggestions**

The faculty should really encourage its personnel in studying and learning English language as it is a prerequisite for publishing research results and distributing this information as published in English. English language is also used widely in continuing education and in congresses. It is seen very essential for deeper scientific collaboration and recognition.

The faculty should make the guidelines for final laureate thesis on publishing and printing it in order to harmonize it. Exact guidelines like in publishing in scientific journals (Title, introduction etc, as well as spacing, text type, tabulations etc.) should be created and they should be available in internet. The laureate theses and their workload would be more comparable and more uniform..

Also Laureate theses should have a Summary in English for spreading the information to the research community and this should also be available on the Internet in UNIME Faculty of Veterinary Medicine pages. This would increase the visibility of UNIME Veterinary Faculty also internationally.

English teaching and English language competence should be raised among students and teachers accordingly and TOEFL test should be instituted (Test of English as Foreign Language) to all in research programmes as well as for students during the 1st and 2nd year. Those not passing should take lessons in English language. Proficiency of English (fluent) also opens ways to working in other European countries.

The team also suggests that theses should be written and published on the Internet in English language whenever possible. The results are also encouraged to be published in refereed international journals.

Internships in clinical sciences should be established and young veterinarians hired to work in VTH for 1-2 years. This opens ways to apply to different residency programmes widely in Europe and in USA. Residency positions should be established by recruiting external funding e.g. from pharmaceutical or dog/cat/horse food companies etc..

Foreign Diplomates should be recruited as supervisors of the residents when establishing a residency in an initial phase. This would also raise the level of clinical medicine and surgery (and other disciplines) in the VHT hospital setting and stimulate clinical research as well.

Residents produce at least 2 papers/publications in refereed international journals and this improves especially clinical research and leads further also to a PhD-degree of those interested in research.

## EXECUTIVE SUMMARY

***Preamble:** this summary does not and cannot emphasise all positive aspects of the visited establishment; the gist is shortness and therefore priority is given to pointing out areas of concern and to suggestions for improvement.*

The department of Veterinary Sciences (FVMM) is part of the large University of Messina. FVMM is housed since approximately 10 years in a modern and purpose built campus, which includes a small farm. FVMM is a public institution, governed by national laws, with sufficient autonomy to allow some adaptation of the curriculum and the sub-departmental structure (decision making bodies) to local and regional needs. This potential autonomy is, however, not always utilised to its full extent: for instance, in the recruiting policy for academic and technical staff (lack of: international advertisement, Diplomates, residents, Internship, veterinary nurses). The committee structure on all levels is well developed, although an administrative overcharge requires reduction without decreasing efficiency.

**Finances:** the budget is nearly entirely dependent on public funds, although some units create excellent 3rd party income (e.g. animal production, public health and some other research groups); generation of additional income through services (clinics, diagnostics) and research is a *conditio sine qua non*, not only for improving standards, but for maintaining the status quo, which presently is in certain areas below acceptable levels (see below). Revenues must be re-invested into the services generating them and must also be usable to employ personnel and to remunerate staff commensurate with expertise and performance (Diplomates, residents, interns, and nursing staff – such positions which need to be created). A long-term Planning Committee (5-year budget plan) should be instituted.

**Curriculum:** the general aspects of the curriculum (length, listed subjects) comply with the EU requirements as described in the directive 36/2005. A new study law is in force since 2004, but has been fully enacted at the FVMM only 3 years ago, which translates to two active curricula run in parallel (new 1st - 3rd year, old 4th and 5th year). Overall, practical, hands-on teaching is still on instances below the limit (see major deficiencies) in clinical areas and should be further increased. In Basic Sciences, the curriculum is delivered satisfactorily, with the following exceptions: English proficiency is below average and needs mandatory and improved learning, systemic anatomy and pathologic anatomy both need more practical teaching on entire cadavers (healthy and with lesions) and this on the whole range of domestic animal species commonly treated in clinics. Clinical Sciences: the small animal teaching hospital is fully operational only since a very short period (weeks in some areas such as 24/24 ES, intensive care); overall case load is still insufficient and not sufficiently diversified for proper hands-on clinical teaching. This is seen as a **serious deficiency**, although the outlook is encouraging if the present trend continues. The large animal clinic, on the other hand, has not been constructed yet; in-house large animal teaching (equine and bovine) is therefore nearly absent. This is seen as another **serious deficiency**. Building plans have been seen and financing seems assured. The to-be-built clinic buildings will include isolation facilities, a large animal necropsy room and stables for horses and bovines. Although the structures will likely be finished and equipped within the next 5 years, appropriate staffing with teaching and technical personnel seems not assured. To compensate for these deficiencies, FVMM has constructed a complex system of extramural teaching by outsourcing to sometimes very distant clinics. This, however, is seen

as precious addition to teaching, yet can by no means fully substitute the relative (small animals) or nearly complete (equines, bovines) lack of intramural teaching in these areas. In short, teaching clinical medicine by others than those performing clinics is largely inappropriate, hands-on teaching is limited in private practices and monitoring the dynamics of disease and treatment is insufficient and assessment of extramural learning outcome needs improvement. On the farms and in the necropsy room, bio-safety and bio-security measures should be improved and aseptic principles of surgery must be taught better. The ambulatory clinic should run most of the year, student participation must be mandatory. The overall contact times with clinical medicine and practical teaching in the “Tirocinio” (5th clinical year) must be further increased. Overall, the clinics must become centres of excellence which requires increased specialisation, referrals and improved services; in turn this will create increased revenues, recognition and growth.

**Food hygiene & technology and veterinary public health:** high level throughout.

**Electives, optional disciplines & other subjects:** specialising courses are few and students should be encouraged and receive better support for studying guest semesters abroad.

**Teaching quality & evaluation, examinations:** it is necessary to increasing further practical experience, problem-oriented clinical teaching, e-learning and evidence-based and research based teaching. Progressive assessments during the semester should be increasingly applied. Oral examinations should not be used exclusively, which is current practice in nearly all areas; written exams will improve objectivity. Although regulated by law, all possible measures should be undertaken to restrict or render more difficult indefinite exam retakes. Clinical outcome assessment must be improved (revise logbook). Didactic courses should be offered to junior teaching staff and should become mandatory for those with negative student evaluations. Excellence in teaching should be valued accordingly.

**Physical facilities & equipment:** for the lack of the large animal hospital with annexes (isolation, necropsy, stables) see comment above; otherwise clinics and laboratories are well equipped, some excellently. Appropriate bio-safety measures are present in all laboratories (improvement needed in necropsy area and on farms). The campus farm needs improvement and enlargement especially for housing of bovines (propaedeutics teaching). The central pharmacy needs improved management and an increased assortment of drugs for treatment of in-house patients. The pool of technical support staff must be increased.

**Animals & teaching materials of animal origin:** see comments above especially in terms of lack of sufficient case load in small and large animals, insufficient use of the ambulatory clinic, and the relative lack of carcasses in systemic anatomy teaching and in necropsy services, this, especially for equines and bovines.

**Library & learning resources:** improve e-learning resources and improve availability of most recent textbooks (e-books).

**Admission & enrolment:** the number of admitted students, as well as the admission modalities is nationwide regulated. Approximately 60 students are admitted annually, nearly all are Italian. Although the buildings and facilities are certainly designed for higher number of (active, in-course) students, increasing the number of admitted students is under present conditions not advisable as resources, especially clinical, are and will for a longer time not be

sufficient for proper teaching of more students. Internationality on all levels, incoming and outgoing must be increased.

**Academic teaching & support staff:** Teaching staff to student ratios are very favourable; however, there is a shortage especially in recruiting young academicians and much concern about replacement of retiring faculty. The relative lack of support staff has been addressed above; a long-term planning committee should be instituted proposing solutions. The option of relocating posts of administrative personnel to other areas, where need for personnel seems greater, should be carefully evaluated. In the clinics, specialisation and recruiting staff on the College level, with the creation of residency and internship programs, must have priority.

**Continuing education:** excellent programs.

**Postgraduate education:** different PhD programs are available. For residency and internship programs see comments above.

**Research:** for the undergraduate thesis, we strongly recommend a mandatory English summary and publication on the Web site. Clinical research needs improvement and support. A common and department-wide research strategy, focussing on areas of strength, should be developed.

**In summarising, the FVMM needs substantial improvement in the clinical disciplines, especially in large animal in-house teaching, which will be accomplished by building and rendering functional the large animal teaching hospital and by improving functionality of the existing small animal hospital. Both clinical areas (small animal on one hand, equine and bovine on the other) are being seen as one major deficiency, each, and, as long as not corrected, the team recommends **NON-APPROVAL**.**

**ECOVE DECISION: NON-APPROVAL ON ACCOUNT OF THE FOLLOWING MAJOR DEFICIENCIES:**

1. Inefficient number of necropsies in large and companion animals resulting in insufficient hands-on-training
2. Lack of isolation unit especially in large animals
3. Lack of mobile clinic
4. Low case load in the small animal teaching hospital

## Annex 1 Indicators

Ratio		Number	Denominator	Established range 2012
R1	No. of total academic FTE in veterinary training	80.6	8.547	R1 8.85-10.42 UL R2 8.75/12.54 UL R3 10.62-12.62 UL R4 4.91-7.21 UL R5 0.53-2.20 range R6 0.51-0.36 LL R7 1.88-2.21 UL R8 0.51-7.87 range R9 still open R10 still open R11 2.47-1.73 LL R12 0.51-7.87 LL R13 0.20-0.09 LL R14 1.78-0.92 LL R15 0.58-0.37 LL R16 48.74-37.94 LL R17 still open R18 0.75-0.46 LL R19 0.26-0.12 LL R20 1.26-0.89 UL
	No. undergraduate veterinary students	687		
R2	No. of total FTE at Faculty	125.6	6.098	
	No. undergraduate students at Faculty	767		
R3	No. of total VS FTE in veterinary training	62.6	10.989	
	No. undergraduate veterinary students	687		
R4	No. total VS FTE in veterinary training	62.6	0.971	
	No. of students graduating annually	60.8		
R5	No. total academic FTE in veterinary training	80.6	0.558	
	No. total FTE support staff in veterinary training	45		
R6	Theoretical training	2,127	0.752	
	Supervised practical training	1,599		
R7	Clinical work	547	1.923	
	Laboratory work and non-clinical work	1,052		
R8	Self directed learning	202	18.519	
	Teaching load	3,726		
R9	Total n. curriculum hours Food Hygiene/Public Health	335	11.235	
	Total n. Hours vet. curriculum	3,737		
R10	Total n. curriculum hours Food Hygiene/Public Health	335	0.224	
	Hours obligatory extramural work	75		
R11	No. of students graduating annually	60.8	0.575	
	No. of food producing animals seen at the Faculty	35		
R12	No. of students graduating annually	60.8	20.408	
	No. of food-animals consultations outside the Faculty	1,248		
R13	No. of students graduating annually	60.8	1.923	
	No. of herd health	117		
R14	No. of students graduating annually	60.8	0.816	
	No. of equine cases	49.6		
R15	No. of students graduating annually	60.8	2.439	
	No. of poultry/rabbit cases	150		
R16	No. of students graduating annually	60.8	66.667	
	No. of companion animals seen at Faculty	3,889		
R17	No. of students graduating annually	60.8	0.049	
	No. of poultry (flocks) and rabbits (production units) seen	3		

R18	No. of students graduating annually	60.8	0.329
	No. of necropsies of food producing animals	20	
R19	No. of students graduating annually	60.8	1.235
	No. of necropsies of poultry/rabbits	75.3	
R20	No. of students graduating annually	60.8	0.685
	No. of necropsies of companion animals	41.6	

## Annex 2 Listing of two Major Deficiencies

The relative lack of in-house practical teaching in large animals, based on and in combination with the inexistence of a functional large animal hospital is considered by the team as **one major deficiency**. This deficiency includes the following and linked insufficiencies: lack of in-house equine and bovine necropsies and inexistence of an isolation unit for those animal species.

The low and yet inconsistent case load in the small animal teaching hospital is being considered by the team as **one major deficiency**.

## Annex 3 Student`s Report is incorporated into the text