



**VISITATION REPORT**

**To the University of Veterinary Medicine, Hannover**

**On: 15-19 January 2018**

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## **Introduction**

### **Brief history of the Establishment and of its previous ESEVT Visitations**

- The University of Veterinary Medicine Hannover (referred to in this report as TiHo) has been operating as an independent Establishment since it was founded in 1778, making it one of the oldest veterinary schools in Europe
- At the beginning of 2003 the TiHo became an endowed public university operating as a foundation; the TiHo is now one of 5 such foundations within Lower Saxony. This recognition has provided an increased opportunity to further develop excellence in research, teaching and veterinary related services. Within its mission statement the TiHo aims to develop these opportunities to benefit its students, the veterinary profession and society at large
- The Standards and guidelines for quality assurance in the European Higher Education Area (ESG) requires universities based in Europe to carry out internal and external evaluations of research and teaching at regular intervals. The external evaluation of veterinary education Establishments in Europe is conducted by the European Association of Establishments for Veterinary Education (EAEVE) operating through the European System of Evaluation of Veterinary Training (ESEVT). The TiHo was last evaluated by ESEVT in 2008, where no major deficiencies were found, although a number of minor deficiencies and suggestions were made by the visitation team.

### **Main features of the Establishment**

- Similar to a relatively small number of veterinary Establishments within Europe, the TiHo is an independent university for veterinary medicine. To oversee the TiHo there is a Board of Trustees with legal control responsibilities which is then able to represent the interests of the public, stakeholders and the relevant political bodies
- About 250 undergraduate places are available every year, selected from well over 1,000 applicants. When postgraduate students are included, there are approximately 2,400 registered students. In addition, the TiHo has a bachelor biology science course which is run in cooperation with the Leibniz University Hannover and the Hannover Medical School
- The TiHo has 5 geographical locations. There are two main campuses, at Bischofsholer Damm and at Bünteweg. The newer campus Bünteweg is designed to provide room for further development for both education and research needs. Within the two major campuses the TiHo has six clinics and 21 institutes. The remaining three locations are in Ruthe, south of Hannover, in Bakum near Vechta and in Büsum at the North Sea, all designed for training students and conducting research projects.

### **Main developments since the last Visitation**

In 2008 the visitation team made several suggestions which have since been implemented by the TiHo, for example:

- Wi-Fi now accessible throughout the whole campus area
- The amount of practical training has been increased in comparison to didactic teaching
- The introduction of two obligatory examiners for oral repeat examinations
- The expansion of the Clinical Skills Lab and its further integration into the curriculum; the Lab now has 36 units for training of specific clinical-practical skills and,

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importantly, is open to all students

- Following additional input from a number of external stakeholders, the introduction of new electives such as those considering economical and ethical subjects.

In addition to the above improvements, a number of further changes have been implemented which affect teaching:

- Introduction of a stipend programme for “excellent” students as well as abolishing the study fees previously paid by students (which are now refunded by the ministry)
- For teaching purposes, a further development of the herd health management scheme, involving the involvement of more local farmers
- Building new clinical facilities for equines, small animals and exotics
- Establishing a new research centre for emerging infections and zoonoses, which strengthens one of the major research focuses of the TiHo.

### **Major problems encountered by the Establishment (whether resolved or not)**

- Within their SER the TiHo have identified a number of areas with the potential for causing future problems, namely:
- The number of students entering the Establishment is directly linked to the number of teachers, so from a legal perspective more teachers will result in more students
- The veterinary curriculum is subject to an Ordinance concerning the Certification of Veterinary Surgeons in Germany (called the TAppV) which as a result does cause some limited flexibility in altering/developing the curriculum.

### **Version and date of the ESEVT SOP which is valid for the Visitation**

**The Standard Operating Procedure (SOP) as approved at the Uppsala General Assembly in 2016.**

## **1. Objectives and Organisation (see Standards 1.1 to 1.6)**

### **1.1. Findings**

#### **1.1.1. Brief description of the Strategic Plan**

It would be useful here to copy from the SER the main details of the responsible individuals who hold the overall responsibility for the delivery of the Strategic Plan:

1. President: Dr Gerhard Greif
  2. Vice-President for Administration: Joachim Mertes (Economist)
  3. Vice-President for Teaching: Professor Andrea Tipold (Veterinarian)
  4. Vice-President for Research: Professor Hassan Naim (Biochemist)
- The TiHo is an endowed university within a public foundation, the principles of which have to follow the fundamental principles as laid down by the Lower Saxony University Law (NHG). The NHG is enacted through the Lower Saxony Ministry of Science and Culture and enforced by a Board of Trustees. Further details of the organisation are given under 1.1.3
  - The Strategic Plan as laid out in the SER demonstrates the involvement of stakeholders in establishing the plan. An up to date SWOT analysis, as included in the SER, outlines the perceived areas of strength within the TiHo, and then sets out the many opportunities that exist to further strengthen these areas. One of these opportunities lies within the Establishment of the “Virtual Departments” that will be a vital ingredient in eliciting cooperation between both the teaching and research groups in the TiHo
  - The one potential problem is mentioned in both the weaknesses and threats: that of an unexpected (and unwelcome) increase in student numbers. This is due to the fact that the number of students entering the TiHo is not under the control of the Establishment, it is as a result of a formula based on the number of centrally funded staff and the notational number of hours attributed to these different levels of faculty staff. The state by-laws that drive this formulaic calculation are the Teaching Obligation Regulation of Lower Saxony (LVVO) and the Teaching Capacity Regulation of Lower Saxony (KapVO). The LVVO specifies the fixed number of hours to be taught per year by each faculty member. The KapVO forms the basis for the number of students to be admitted each semester by dividing the total teaching capacity by the number of centrally funded faculty. This formula has resulted in 254 student places for the TiHo for 2017/18. The potential problem is that any changes in political objectives could seriously affect the student intake with little or no influence from the TiHo.

There is a clear Mission Statement from the TiHo outlined in the SER, which encompasses a clear description of the Objectives.

#### **1.1.2. Brief description of the Operating Plan**

- The contract between Lower Saxony and the TiHo guarantees a stable level of financing for 5 years, currently until 2021, and there is an associated agreement on objectives between the state of Lower Saxony and the TiHo based on the mission statement. The last agreement was made for the years 2014 up to 2018 which guarantees the financial allocation from the state to the TiHo in return to the university guaranteeing a commitment to the agreed objectives in teaching, research and service. To deliver this

commitment, internal targets are agreed between the Presidium and scientific units (clinics and institutes)

- These targets/commitments are laid out in table 1.1 in the SER with a clear timeframe for their delivery.

### **1.1.3. Brief description of the organisation of the Establishment**

- As a Foundation University operating within Lower Saxony, TiHo has a Board of Trustees with the ability to make fundamental decisions concerning the university. This Board has a majority of individuals representing external stakeholders (including from ministerial level) as well as a member of the university senate. Acting in an advisory role but with no voting rights are the president, the vice-presidents, the equal opportunity officer, the head of staff committee and a representative of students. Proposal for the election of a new President is delivered by a Commission established for this purpose with membership derived from both the Board and Senate. The selection result of the senate is confirmed by the Board. The position of President is for a six year renewable period
- The Presidium is responsible for the overall management of the university and in implementing resolutions taken by the board of trustees. As mentioned above, it operates effectively as a relatively small group consisting of the President and three vice presidents of teaching, research and administration. The Presidium meets fortnightly
- The Senate, with 7 professors as well as representatives from the scientific staff, support staff and students, meets every month and has the overall responsibility for enacting the regulations pertaining to all academic issues. All members of the Senate are elected from within their respective peer group
- There are then a relatively large number of Commissions each with responsibility for consulting and delivering on the varied areas of activity within the TiHo

### **1.1.4. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of the Strategic Plan and organisation of the Establishment**

- As discussed above, the strategic plan and objectives of the Establishment are embedded within the mission statement. The mission statement is initially drafted by the University Developmental Commission before approval by the Senate and Presidium; it covers all the target areas as well as the “Agreement on Objectives” derived from the Ministry
- Decisions in the Presidium and in the relevant commissions then deliver on the statements in the strategic plan
- Within this timeframe there are many opportunities for stakeholders such as students, academic, research and support staff to not only be informed of the details, goals and implementation of the plan, but also be in a position to influence it. The TiHo widely publishes the plans, decisions and developments in the areas of research, teaching and administration utilising several media to deliver to different recipients.

## **1.2. Comments**

None

**1.3. Suggestions for improvement**

None

**1.4. Decision**

The Establishment is compliant with Standard 1 Objectives and Organisation.

## **2. Finances (see Standards 2.1 to 2.5)**

### **2.1. Findings**

#### **2.1.1. Brief description of the global financial process of the Establishment and its autonomy on it**

- There are two main sources of income for the TiHo. These are firstly a block of public funds derived from the ministerial authorities in Lower Saxony, and secondly, income derived from areas such as clinical services and research grants. As for the centrally derived public funds, the TiHo operates under a lump-sum budget, which permits a flexible allocation of funds as well as the accrual of capital reserves
- This amount of autonomy gives the TiHo a degree of flexibility for its operation whilst still retaining responsibility to the state concerning the mutually agreed list of objectives. Furthermore, the TiHo can build up its own capital from income and private donations. By law, these revenues may not be deducted from the funding provided by the state
- The income mentioned above which is derived from **non-block** sources is charged an overhead of 20%, which is subsumed into the main budget; the remaining 80% is then allocated back to the originator of the income (e.g. clinical income and grant income). Interestingly, whilst the overhead allowance on research grants are paid by donors such as EU, Federal ministries and the German Research Foundation, there are also grants that do not specify overhead income; in such cases the 20% does not apply
- Otherwise the block grant from the ministry of the state of Lower Saxony, the Establishment can separately apply for additional funds towards renovation as well as the construction of new buildings. Occasionally, the ministry itself could ask the Establishment if it wishes to apply for new projects. Finally, the Establishment can apply to the federal government for funds towards research development.

#### **2.1.3. Brief description of the projected budget (expenditures, revenues, balance) of the next 3 years**

The TiHo is confident of retaining both the block grant and “third party” income over the next three years. While details are provided in the SER of the breakdown of the sources of income and breakdown of the areas of expenditure, there is a useful table summarising the total income/expenditure/balance over the last three years:

#### **Annual balance between expenditures and revenues (in €)**

<b>Academic year</b>	<b>Total expenditures</b>	<b>Total revenues</b>	<b>Total revenues Balance*</b>
<b>2014</b>	<b>95.367.616</b>	<b>96.002.603</b>	<b>634.987</b>
<b>2015</b>	<b>92.515.036</b>	<b>89.250.635</b>	<b>-3.264.401</b>
<b>2016</b>	<b>87.852.332</b>	<b>86.406.303</b>	<b>-1.446.029</b>

\*Total revenues minus total expenditures

**2.1.4. Brief description of the planned or on-going investments**

In the annual block grant from the Ministry, funds for the maintenance and repair of buildings are included. However, the TiHo plans to upgrade the facilities in a number of institutes.

**2.1.5. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of the budget of the Establishment**

- While the Presidium is responsible for all decisions concerning financial plans, it discusses these plans annually with the Senate. As far as the external stakeholders are concerned, the supervision and monetary control is overseen by the Foundation Board on the basis of annual reports, internal and external audits
- The distribution of the special Budget for Study Quality (Studienqualitätsmittel, SQM) is discussed and decided on by the Commission for Study Quality Budget together with the Presidium. This special budget has to be used for enhancing study quality.

**2.2. Comments**

None

**2.3. Suggestions for improvement**

None

**2.4. Decision**

The Establishment is compliant with Standard 2 Finances.

### **3. Curriculum (see Standards 3.1 to 3.10)**

#### **3.1. General curriculum**

##### **3.1.1. Findings**

###### **3.1.1.1. Brief description of the educational aims and strategy in order to propose a cohesive framework and to achieve the learning outcome**

The education of veterinary surgeons in Germany is governed by German Federal ordinance which sets the standards to be applied across all courses in Veterinary Medicine in Germany. This ordinance, referred to as the TAppV (Verordnung zur Approbation von Tierärztinnen und Tierärzten), states that:

“The objective of the training is an academically and practically trained veterinary surgeon who is capable of practising the veterinary profession responsibly and independently within the meaning of Section 1 of the Federal Veterinary Code and of undergoing further training and ongoing advanced training

1. The fundamental veterinary, scientific, interdisciplinary and methodological skills,
2. Practical skills,
3. Spiritual and ethical foundations, and
4. A professional attitude committed to the well-being of humans, animals and the environment”

The ordinance goes on to require very specific academic requirements, in terms of academic content, and hours of theory versus practical training.

The TAppV requires coherence between the different German veterinary Establishments.

The awarded registrable qualification is “Zeugnis über das Ergebnis des Dritten Abschnitts der Tierärztlichen Prüfung und das Gesamtergebnis der Tierärztlichen Prüfung”, which is obtained after 5.5 years of veterinary education, and the qualification is in compliance with EU directive 36/2005.

The Establishment uses the flexibility permitted by TAppV, which allows a deviation of up to 20% from the mandated content, to provide an additional orientation to clinical work. Any such changes however must be approved by the regulatory body.

The Establishment is also constrained by State by-laws, which dictate the teaching hours of staff and the teaching capacity (number of students to be admitted).

The stated aim is to enable its students to think independently and to seek solutions to problems, thus preparing them for lifelong learning.

The stated educational strategy of the Establishment is to constantly review and improve teaching and learning outcomes on the basis of student’s evaluations and assessment results, informed by the Bigg’s model of constructive alignment.

The first semester period commences in October, with lectures and timetabled classes finishing in February, followed by an examination period. The second semester period commences in

April with lectures and classes finishing in July. The following table is indicative of the 2017/2018 academic year.

2017 / 2018	Semester length	Lecture period	Break / vacation
Winter semester	01.10.17 - 31.03.18	16.10.17 - 03.02.18	23.12.17 - 06.01.18
Summer semester	01.04.18 - 30.09.18	09.04.18 - 21.07.18	22.05.18 - 26.05.18

**3.1.1.2. Brief statement if all EU-listed subjects are taught in the core curriculum to each student (independently of the tracking system)**

The German Federal ordinance TAppV lists and requires all of the EU-mandated subjects. The Establishment does not have the freedom to deviate from these mandated subjects. Within this framework, and using the allowed flexibility, the Establishment has made a number of changes to duration and hours associated with certain mandated subjects; however, all of the EU-mandated subjects are included in the curriculum.

**3.1.1.3. Brief description of how curricular overlaps, redundancies, omissions and lack of consistency, transversality and/or integration of the curriculum are identified and corrected**

The Establishment has provided a complex diagram indicating the inputs to and from stakeholders involved in a curricular review. There is an expert commission for each “special area” as designated by TAppV, comprising four in total. Course contents are determined by the institute or clinic responsible for teaching and are discussed and decided by the Expert Commissions. The overall curriculum review process involves representatives from the Expert Commissions alongside the Commission for Curricular Affairs, including discussion of student’s comments, together with the Vice President for Teaching. Student evaluations are taken into consideration in evaluating the curriculum content. These meetings are held every semester.

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

The TAppV mandates that students must complete 308 hours of optional (elective) courses. 84 hours must be taken in basic subjects and sciences, while 126 hours in clinical sciences or food hygiene/public health. Electives are announced by the faculty during the semester prior to the elective being offered. These are provided at specific times (Wednesday and Friday) to give the students greatest flexibility and choice, and more places are offered than there are students to fill these places. An online system is used to match students to their electives. Students may also approach staff directly. Students with particular needs are given preference.

Students are invited using the online platform to submit their elective preferences. Following submission, electives are allocated by preference, and also ranked according to the number of elective hours that the student has already completed. The Establishment attempts to facilitate student wishes.

### **3.1.1.5. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of the curriculum**

The Establishment cannot change the curriculum as it is set by national ordinance. Decisions on actual content and delivery is determined by the Expert Commissions. All professors and a representative proportion of scientific staff, support staff and students are members of the respective expert commissions. Deliberations are informed by student evaluations of the staff and course. Results of the Expert Commission discussions are published to inform the institutes and clinics. Representatives of the expert commissions, as well as representatives of scientific staff, support staff and students are also on the Commission for Curricular Affairs which plans and implements the curriculum.

A yearly stakeholder meeting, involving the Working community of senior veterinarian officials of the Federal States (AfAB), Federal Association of Practicing Veterinarians (BpT) and Federal German Chamber of Veterinarians (BTÄK), are held with the Veterinary Faculty Association.

### **3.1.2. Comments**

The Establishment are to be commended for their use of the flexibility within the TAppV.

### **3.1.3. Suggestions of improvement**

- Given the importance of the mandatory EPT, a more formal organisation of the handling of the EPT is suggested (see 3.6.1.2)
- The curriculum should more explicitly address training in the scientific method and research techniques relevant to evidence-based veterinary medicine. This point is addressed in more detail in section 10.

### **3.1.4. Decision**

The Establishment is compliant with Standard 3.1 General Curriculum.

## **3.2. Basic sciences**

### **3.2.1. Findings**

#### **3.2.1.1. Brief description of the theoretical and practical education in basic sciences**

- The basic subjects of animal biology, medical physics and plant biology and chemistry are taught in the Establishment as part of the core curriculum in semesters 1 and 2. Biomathematics is taught in semester 4
- Physiology is taught over semester 2 and 3, and comprises 168 hours of contact time, of which 133 hours is lecture/seminar-based, and 35 hours laboratory or desk-based work
- Biochemical and molecular biology, taught in semesters 2 and 3, comprises 112 contact hours of teaching, with approximately 70:30 didactic versus practical teaching
- Anatomy, including histology and embryology, is taught across the first 4 semesters, comprises 322 hours, of which the greater proportion, 196 hours, is practical-based. Teaching specimens include cadavers which are either fresh (shortly after euthanasia),

or cooled, or frozen and thawed, or stored in a saline solution. Formalin-fixed cadavers of small ruminants are used to demonstrate the digestive tract

- Microbiology (including virology, bacteriology and mycology) content consists of 182 hours in total. The content is again approximately 70:30 didactic vs practical coursework
- Toxicology is taught over 14 contact hours. Pharmacology, including pharmacy and pharmacotherapy is taught primarily didactically, with 112 contact hours.

### **3.2.2. Comments**

None.

### **3.2.3. Suggestions of improvement**

None.

### **3.2.4. Decision**

The Establishment is compliant with Standard 3.2 Basic Sciences.

## **3.3. Clinical Sciences in companion animals (including equine and exotic pets)**

### **3.3.1. Findings**

#### **3.3.1.1. Brief description of the theoretical, practical and clinical education in Clinical Sciences in companion animals**

Clinical education is implemented through the curriculum, starting with preclinical activities up to the practical year, including intramural and extramural practical training.

#### **3.3.1.2. Description of the core clinical exercises/practicals/seminars in companion animals prior to the start of the clinical rotations**

- Theoretical and practical clinical education in the Establishment is initiated in the 1st semester by the tool denominated “Clinical Skills lab”. Theoretical and hands-on training using mannequins and simulators are provided by tutors, peer-tutors or self-learning instructions, and these instruments are available for all students
- In the 2nd and 3rd semester, the students have seminars, laboratory, non-clinical animal work and practical training in all species, including extensive teaching on companion animals; this teaching includes studying the physiology of the different companion animal species
- After these preliminary subjects, the propaedeutic courses are located in the 4th and 5th semester: with theoretical teaching and practical training utilising non-clinical animals. 56 hours per each semester (50% seminars and 50% practical training in groups of 5-10 students per 1 supervisor and one animal) are provided in this subject. In addition, and covering all species, lectures in radiology (18 hours) and in general pathology (60 hours) are taught in this semester, as well as general and molecular genetics (lectures and non-clinical animal work) (42 hours in total). In the 5th semester, lectures of

various clinical subjects such as radiology, exotics, reproduction, internal medicine etc. with a total length of 70 hours per student are given

- At the three companion animal clinics (Small Animal Clinic, the Small Mammals, Reptiles and Birds Clinic and the Equine Clinic), the majority of hands-on clinical training is offered for 5th year students during 10-11 weeks of specialized training, where students rotate through the clinic and the different divisions. The clinical training rotations are organized 4 days a week. Students are working in groups of two with one animal and one supervisor, while other students observe. Clinical examination and diagnostic procedures (courses in animal handling and examinations, animal handling and therapeutics) in dogs, cats, exotics and horses are taught
- Likewise, small animal diseases (internal medicine, surgery, cardiology, dermatology, anaesthesiology, neurology, ophthalmology, oncology, diagnostic imaging, etc.); diseases of small mammals, reptiles and birds (internal medicine, surgery, dermatology, anaesthesiology, neurology, ophthalmology, oncology, diagnostic imaging, etc.); and training of equine clinical cases (equine medicine, orthopaedics, surgery, anaesthesia, pain management, endoscopy etc.) are taught
- Mandatory report writing is performed during the clinical training, with feedback by teachers provided. One week prior to the above 10-11 weeks rotation, there is a course dedicated for Skills Lab training in order to prepare for the clinical rotations (Communication skills, anaesthesia, suturing etc.). A formative OSCE gives students feedback about their reached competences. Cadaver training for surgery is performed in small groups (1-2 students)
- Additional clinical training is also provided within the different electives. According to the TAppV, 126 hours out of the 308 hours of elective subjects, has to be taken in clinical sciences or food hygiene/public health. The selection system for electives seems to be well coordinated in order to cover students 'demands'.

**3.3.1.3. Description of the core clinical rotations and emergency services (both intramural VTH and ambulatory clinics) in companion animals and the direct involvement of undergraduate students in it (responsibilities, hands-on versus observation, report writing...)**

- The core clinical rotations are located within the denominated "practical year" in the final semesters. Students can choose their individual rotation option from 6 pathways, including small animals, small mammals, reptiles and birds and horses
- Within each option, 10-20 students spend 10-14 weeks. The groups of students are then divided into small groups of 2-4 students per supervisor, and assigned to the different services for 1 to 2 weeks. Students become dynamically involved with the management of the daily medical, surgical, intensive care, anaesthesia and emergency cases and reproduction
- In addition, students have a logbook with clinical procedures, which has to be signed by the duty clinician and supervised by the coordinator in order to pass the rotation
- Students on rotations become actively involved in the daily management of patients, the hospitalization protocols as well as the emergency procedures. They have access to the EasyVet programme where all the clinical files are available
- In addition to intramural practical training, the Establishment has a compulsory practical (extramural) training of 1170 hours in total, composed of 4 blocks, one of them being practical training in a Veterinary Practice or Veterinary Hospital (850 h). One clinical track is mandatory for every student, but an additional track can be elected

by the students. The additional track might be either clinical or from the research field. The research track selection is variable depending on the available ongoing projects, but basically every Institute of the Establishment can provide this.

### **3.3.2. Comments**

- The practical teaching is organized within the different departments and clinics of the Establishment in a way that allows the students to get sufficient hands on clinical experience in all species. The use of the clinical skills lab is a very valuable tool, and certain procedures are mandatory for each track of the practical year. Students are taking advantage of this new unit, which was built inside the former small animal clinic
- The clinical training sessions distributed through the different clinics before the practical year together with the clinical skills lab allow the students to achieve the basic clinical approach to patients of the different species
- In addition, electives and External Practical Teaching gives the opportunity to improve the clinical skills in the different areas of veterinary profession, depending on the students' demands: small animals, equines, ruminants, exotics, pigs, poultry etc.
- Finally, the Practical Year is organized in such a way, that students can achieve a very good clinical hands-on experience within the chosen rotation. Apart from the mandatory rotation within the practical year, an additional rotation can be performed by the students.

### **3.3.3. Suggestions of improvement**

- Even though students get sufficient hands on experience on the different species due to the combination of clinical skills labs and clinical rotations, the Establishment might improve this clinical training, considering the good facilities and caseloads of the clinics. For example, if in the core clinical rotations students are more involved with the patients, in the consulting rooms, on the surgical procedures, at the emergencies, etc. especially the surgical ones, they will increase their clinical skills in all of the species.

### **3.3.4. Decision**

The Establishment is compliant with Standard 3.3 Clinical Sciences in companion animals (including equine and exotic pets).

## **3.4. Clinical Sciences in food-producing animals (including Animal Production)**

### **3.4.1. Findings**

#### **3.4.1.1. Brief description of the theoretical, practical and clinical education in Clinical Sciences in food-producing animals**

Clinical education is implemented through the curriculum, starting with preclinical activities up to the practical year, including intramural and extramural practical training.

**3.4.1.2. Description of the core clinical exercises/practicals/seminars in food-producing animals prior to the start of the clinical rotations**

- Theoretical and practical clinical education in food-producing animals in the Establishment is initiated in the 1st semester by the tool denominated “Clinical Skills lab”. Theoretical and hands-on training using mannequins and simulators are provided by tutors, peer-tutors or self-learning instructions, and these instruments are available for all students
- In 2nd and 3rd semester, the students have seminars, laboratory, non-clinical animal work and practical training in all species on aspects of physiology
- At the end of the 2nd semester, all students have to follow a compulsory practical block of 70 hours on exercises in Agriculture, Animal Breeding and Animal Husbandry at the Farm for Education and Research in Ruthe (20 km south of Hannover). This farm offers students excellent facilities and examples of housing for Poultry, Swine and Dairy farming. (For detailed description of this farm: chapter 5.1.3 at page 40 of the SER)
- Afterwards, in the 4th, 5th semester and the 6th semester, theoretical teaching and practical training with normal animals is scheduled for all animal species, with no differentiation between food-producing animals and companion animals. For the number of hours: see section 3.3
- In the 6th, 7th and 8th semester, clinical cases, provided by each clinic, are taught and discussed during the clinical training sessions on patients. Additionally, in every training unit students have clinical examination training (hands-on), and every student has to write case reports, which are supervised and discussed together with 1-2 students per lecturer
- In addition, in the 7th semester there are 24 hours of pathology seminars (macroscopic pathology, with reports writing) and 12 hours of gynaecological exercise seminars (5-10 students per animal)
- The clinical training in 8th semester includes 28 hours per students, with an organization similar to the previous two semesters. Furthermore, in this semester there are clinical training rotations through the clinics (including all species) for 2 days per week, comprising 28 hours per student. The 8th semester also includes lectures of various clinical subjects with a total length of 263 hours per student
- During the ‘Practical Year’ (the 9<sup>th</sup> and 10<sup>th</sup> semester) students can choose their individual rotation option from five clinical options and one preclinical option (see for details table 3.1.5 in the SER). The Cattle clinic (incl. the ambulatory clinic), the Small Ruminant Clinic (incl. ambulatory), the Clinic for Poultry and the Field Station for Epidemiology in Bakum all offer clinical rotations on Food Animal Health. These clinical training rotations are organized for 4 days a week. Students are working in groups of two with one animal and one supervisor, while other students observe. Clinical examination and diagnostic procedures, herd health visits, ambulatory service, daily short-term farm visits and special training herd health service in cattle, pigs, poultry and swine are taught
- Mandatory report writing is performed during the clinical training, with feedback by teachers provided. One week prior to the above 10 weeks rotation, there is a course dedicated for Skills Lab training in order to prepare for the clinical rotations (Communication skills, anaesthesia, suturing etc.). A formative OSCE gives students feedback about their reached competences. Cadaver training for surgery is performed in small groups (1-2 students)
- Additional clinical training is also provided within the different electives (as also described in section 3.3).

**3.4.1.3. Description of the core clinical rotations, emergency services (*both intramural VTH and ambulatory clinics*) and herd health visits in food-producing animals (*i.e. ruminants, pigs and poultry*) and the direct involvement of undergraduate students in it (*responsibilities, hands-on versus observation, report writing, ..*)**

- The core clinical rotations are located within the denominated “practical year” in the final semesters. Students interested in food-producing animal science can choose their individual rotation option from the following Cattle (including ambulatory), Porcine health management, Small Ruminants (including ambulatory), Poultry Clinic and the Field Station for Epidemiology work in Bakum
- Within each option, 10-20 students spend 10-14 weeks; these groups are then divided into small groups of 2-4 students per supervisor, and assigned to the different services for 1 to 2 weeks. Students have a logbook with clinical procedures, which has to be signed by the duty clinician, and supervised by the coordinator, in order to pass the rotation
- Students on rotations become actively involved in the daily management of patients, the hospitalization protocols, emergency procedures as well as herd health visits, ambulatory service, daily short-term farm visits and special training involving herd health in pigs
- In addition to intramural practical training, the Establishment has a compulsory practical (extramural) training of 1170 hours in total, composed of 4 blocks, one of them being practical training in a Veterinary Practice or Veterinary Hospital (850 h) (see also chapter 3.3)
- One clinical track is mandatory for every student, but an additional track can be elected by the students. The additional track might be either clinical or from the research field. The research track selection is variable depending on the available ongoing projects, but basically every Institute of the Establishment can provide this.

**3.4.1.4. Brief description of the theoretical and practical education in Animal Production**

See table 3.1.1 and 3.1.2. in the SER.

**3.4.2. Comments**

- In addition to the comments in chapter 3.3.2. the Establishment is to be commended for the extensive and excellent opportunities for the students for intensive clinical training at the clinics, the teaching farm at Ruthe, and the Field station for Epidemiology at Bakum
- The Establishment is also commended for its ambulatory service, which provides first opinion clinical services to a number of farms within the Hannover area. This service provides hands-on clinical experience to all students, in a small group setting (3 students per vehicle) prior to the final Practical Year
- The Establishment is also commended for offering students clinical training with a focus on their fields of interest during the ‘Practical Year’ in the 9<sup>th</sup> and 10<sup>th</sup> semester.

**3.4.3. Suggestions of improvement**

- It is suggested to incorporate additional (elective) practical training Animal Welfare, Animal Husbandry, Breeding and Agriculture on the teaching farm in Ruthe.

**3.4.4. Decision**

The Establishment is compliant with Standard 3.4 Clinical Sciences in food-producing animals (including Animal Production).

### **3.5. Food Safety and Quality (FSQ)**

#### **3.5.1. Findings**

##### **3.5.1.1. Brief description of the theoretical and practical education in FSQ**

- Education in food safety and quality, mainly taught by members of the Institute of Food Quality and Food Safety (IFQS), takes place between the 3<sup>th</sup> and 5<sup>th</sup> year. The contents of the core teaching is recorded in a FSQ catalogue, shared and applied for all German speaking veterinary faculties, and some other European veterinary faculties as Ghent and Edinburgh. Topics included are in line with all requirements stipulated in EU Regulation 854/2004
- Theoretical education (476 h) comprises lectures (175 h), and (supervised) self-learning (308 h, but not all formally assessed by examination) on the topics food science and legislation, food microbiology and chemistry, meat inspection and food investigation. Lecture material (PowerPoint presentations, scripts, syllabi) is provided by the institute
- Compulsory practical work (145 h) for all students in the 4<sup>th</sup> and 5<sup>th</sup> year comprises intramural practical courses (45 h) on post-mortem inspection (including all animal species), food technology (preparation of food of animal origin) and lab work. Training is provided by the scientific members of the institute and dedicated technical staff, including a butcher for the meat technology demonstrations. Besides this teaching, there is extra-mural practical training of 100 h in a commercial pig, cattle or poultry slaughterhouse, the choice and location being up to the individual student
- The interdisciplinary class (196 h) in food hygiene (shared between IFQS, clinic for cattle, clinic for pigs and small ruminants, institutes for pathology, parasitology and microbiology, contributions from external experts working at state authorities) is obligatory for students in the 7<sup>th</sup> and 8<sup>th</sup> semester. In this class, students are taught by instructors from different disciplines to bring basic, paraclinical, clinical subjects and food hygiene into context and thereby practise problem-based teaching
- Furthermore, students can choose more specialized FSQ training (currently 2-3 students per year) or a research programme in FSQ within the electives (308h)
- The institute is also involved in the teaching of veterinary technical assistants (VMTA) and veterinarians being prepared for official authoritative duties (Referendare).

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

- In the 5<sup>th</sup> year (practical year), each student selects (with the help of the university student administration office and the IFSQ) a pig or cattle slaughterhouse to perform the compulsory 100 h of EPT training. Poultry slaughterhouses can be selected up to 30 h, combined with 70 h in a pig or cattle slaughter facility. Training is provided under the supervision of a local state veterinarian. Training includes traditional meat inspection as well FQ systems. Training is more or less on an individual 1 to 1 basis. After the EPT training, each student has to complete the mandatory evaluation of both the slaughterhouse and the local veterinarian, and also vice versa
- The intramural practical training in post-mortem inspection and food production takes place in a small inspection hall on the TiHo Bischofsholer Damm Campus. The training, which has to be repeated four times per academic year, comprises 1 week for

60 students per week, subdivided in groups of 11 - 12 students, each with 1 to 2 supervisors. In order to obtain suitable material, the TiHo has access to a number of slaughterhouses in Lower Saxony, from which carcasses and organs are collected for student teaching.

### **3.5.2. Comments**

- The harmonized course content in FSQ (catalogue), which is shared and applied between all German speaking as well as and some other European Veterinary Establishments, is appreciated.
- The in-house post-mortem inspection and food production facility, and the presence of specialized technical staff, allows for an excellent student tailored professional training, both in time allocation as in content.

### **3.5.3. Suggestions of improvement**

- Attention should be paid to obtain a more standardised training offered by each individual local veterinarian in the different slaughterhouses selected by the students for EPT. Training in didactic skills should be available for the local veterinarians dealing with EPT in FSQ.

### **3.5.4. Decision**

The Establishment is compliant with Standard 3.5 Food Safety and Quality (FSQ).

## **3.6. Professional knowledge**

### **3.6.1. Findings**

#### **3.6.1.1. Brief description of the theoretical and practical education in professional Knowledge**

The Establishment declares that the following subjects are taught throughout the curriculum as a part of Professional knowledge:

- Professional ethics and behaviour in 28 contact hours (lectures/seminars). Although these subjects are electives, the Establishment is the first in Germany with a FTE position “Professor of veterinary ethics”
- Veterinary legislation in 58 contact hours (28 of which are seminars and 30 is the practical course)
- Veterinary certification and report writing in 7 contact hours (lectures/seminars),
- Communication skills in 26 contact hours (lectures/seminars)
- Practice management and business in 7 contact hours (lectures/seminars)
- Information literacy and data management in 7 contact hours (lectures/seminars).

#### **3.6.1.2. Brief description of the organisation, selection procedures and supervision of the EPT**

Veterinary training in Germany is regulated by the TAppV, which reflects the requirements of EU Directive 2005/36/EC and translates these into applicable German law. Thus, the conditions for EPT are the same for all veterinary Establishments in Germany and are formulated by the following:

**Quality assurance of extramural traineeships in the framework of veterinary medicine training in Germany**

TAppV defines requirements for content and training places of 1170 hours of obligatory practical extramural training:

Exercise in Agriculture, Animal Breeding and Animal Husbandry (70 h)

- Practical training in a Veterinary Practice or Veterinary Hospital (850 h)
- Practical Training in Hygiene Control and Control of Foodstuffs and in the Inspection of Animals for Slaughter and Meat (175 h)
- Practical extramural training in the Public Veterinary Service (75 h)

The TiHo organises the practical work (agriculture) at the Farm for Education and Research in Ruthe. The clinical training can be done with any veterinary surgeon fulfilling the requirements of Section 58 of the TAppV, the Establishment provides a list of positively evaluated private practices, or teachers give advice to individual students.

The extramural work in a slaughterhouse must be performed in an EU-licensed Establishment.

**3.6.1.3. Description of the procedures (e.g. logbooks) used to ascertain the achievement of each core practical/clinical activity (pre-clinical, clinical, ambulatory clinics, EPT) and professional knowledge by each student (independently of the tracking system)**

The Establishment has a sophisticated system to control and review of all practical/clinical activities in each level of teaching:

- For the pre-clinical/propaedeutic period - the attendance checks during clinical laboratory diagnostics and propaedeutic exercises (signature is required), individual call of students, possibility to catch up missing hours
- The clinical period - Daily attendance checks and individual call during clinical trainings (signature is required), obligation to prepare a patient report by each student (correction / feedback by scientific staff), over all clinics and years resulting in at least 10 reports per student per study course
- Attestation of exercises in the skills lab, OSCE (Objective Structured Clinical Examination) in the Clinical Skills Lab
- Documentation of the interpretation of a minimal number of 40 x-rays
- Logbook for practical activities with the possibility of catching up on missing hours
- Attendance at the ambulatory clinics is checked during farm visits and also the analysis of herd health presentations by students
- EPT (external practical training) is accompanied by evaluation reports, either by students or by supervisor. There are official certificates of EPT (the forms - checklists and evaluation forms for external practical training (EPT) are available as a downloadable attachment as a part of SER)
- Theoretical and practical education in the Professional knowledge field is covered partly by obligatory courses and partly as electives

**3.6.2. Comments**

- The Establishment pays serious attention to evaluating the EPT reports and the results, clearly presented to the visitation team, demonstrated that the overall satisfaction of

both the students and the stakeholders (veterinarians at private practices, slaughter houses...) is over 80-90%

- Although it is clear that TAppV regulations do not allow extensive changes in the curriculum, subjects from this field should be better emphasized in the future. On the other hand, the Establishment shows a clear belief in importance of this field, for example to veterinary ethics by opening the FTE position for Professor of veterinary ethics
- The use of the EasyVet software in all clinics helps students, besides many other areas, to understand the financial background of all clinical procedures.

### **3.6.3. Suggestions of improvement**

None.

### **3.6.4. Decision**

The Establishment is compliant with Standard 3.6 Professional Knowledge.

## **4. Facilities and equipment** (see Standards 4.1 to 4.15)

### **4.1. Findings**

#### **4.1.1. Brief description of the location and organisation of the facilities used for the veterinary curriculum**

- The TiHo is located on two sites: The Bischofsholer Damm Campus, situated 2 km from the town-centre and the Bünteweg Campus, both connected by a tram line and a public road with a cycle track. The Clinic Complex at Bünteweg includes 3 clinics for Small Animals, Horses and a Clinic for other pets, reptiles and birds. The Establishment also has other facilities in a field station for marine animals at Büsum, a farm in Ruthe and a field station for epidemiology in Bakum
- In addition, and located at the TiHo, is the Research Centre for Emerging Infections and Zoonoses (RIZ), which houses and operates multidisciplinary research.

#### **4.1.2. Description of the adequacy for the veterinary training of the premises for:**

**-) lecturing, group work and practical work**

**-) housing healthy, hospitalised and isolated animals**

**-) clinical activities, diagnostic services and necropsy**

**-) FSQ & VPH**

**-) study and self-learning, catering, locker rooms, accommodation for on call students and leisure**

- The Establishment has 28 lecture halls, with a total number of 3635 places. Regarding group work premises, there are 34 rooms, with a total surface of 1784 m<sup>2</sup>. Practical work takes place in a total of 57 rooms, including laboratories, rooms for clinical skills on mannequins etc., considering all the Institutes and Clinics of the Establishment
- With respect to the accommodation for animals; there are plenty of wards for healthy animals of the different species, with a total of more than 2200 places (incl. laboratory animals). Likewise, there are wards for hospitalised animals and isolation facilities for small animals, exotics, cattle, horses, small ruminants and pigs and fishes. In addition, the facilities of the farm at Ruthe are used to keep healthy animals for teaching
- Facilities available for clinical activities include a large number of consulting rooms or and surgical suites for all the species, located at the different Clinics. Routine clinical laboratory diagnoses and diagnostic imaging are performed within the different specialized clinics. The equine clinic and small animal clinic share the premises for MRI and CT
- Facilities to perform necropsies are also available at different places through the campus, with a total of 400 m<sup>2</sup>, plus 190 laboratories with a total of 8,400 m<sup>2</sup>
- Considering the facilities for FSQ & VPH, there are slaughterhouses (an in-house one at the Institute of Food Quality and Food Management, and access to different slaughterhouses) as well as an in-house foodstuff processing unit at the same Institute.

**Maintenance and equipment of the facilities is the responsibility of each institute or clinic**

- Premises for study and self-learning include 1 library, 2 rooms for computer teaching, 4 rooms at different locations in the Bünteweg Campus; the Old-Aula “Pylorus”, 3 rooms at the Clinic for Cattle and 2 rooms at the Institute of Anatomy
- Two different canteens and a private cafeteria are located in both campuses to provide ample catering facilities for students and staff
- There are an adequate number of locker rooms, accommodation for students on call and premises for leisure, including several parent-child rooms.

**4.1.3. Description of the adequacy for the veterinary training of the vehicles used for students’ transportation, ambulatory clinic, and live animals and cadaver transportation.**

- Different vehicles are provided for student transportation, including 22 vans and 6 additional vans and 2 trailers for the transport of clinical equipment. For live animals’ transportation, there are 3 lorries, 6 vans and 3 trailers. Concerning cadaver transportation, there are 2 vans and 3 trailers.

**4.1.4. Description of the adequacy for the veterinary training of the equipment used for teaching purposes and clinical services**

- Maintenance and upgrading the equipment is the responsibility of the different institutes and clinics. Lecture halls and rooms used for practical teaching and supervised work are equipped with modern technical equipment, such as PC’s, beamer, smart boards and WLAN in all areas
- Clinics and Institutes are equipped with modern technical facilities for diagnostics and therapeutic procedures, being somewhat variable depending on the different clinics and institutions
- The different clinics and institutions are responsible of preparing a “list of building measures” showing the category, timeline and the estimated costs. This list needs the approval of the Presidium in order to get executed. There is a central maintenance service which is in charge of the repairing or replacement equipment or facilities.

**4.1.5. Description of the adequacy of the biosecurity rules in the Establishment**

- TiHo takes note of several EU and national legal Biosafety regulations, which are then implemented. The responsibility for Biosecurity and Biosafety relies upon each Institute or Clinic. Within each place, there is a security office, composed of teachers and/or technical staff, which is in charge of biosecurity and biosafety procedures. A global Standard Operating Procedure (SOP) on biosafety and biosecurity of the Establishment is missing, however, there are 3 SOP in some of the institutions/clinics
- Students and staff are trained at the beginning of each semester by the training supervisors about emergency escape routes. Students receive a general introduction on Biosafety and Biosecurity before assisting to each of the laboratories, clinics, and farms, and digital handouts on safety instructions are provided in an online system to all students. The attendance of this safety instructions is mandatory (documented by signature)
- Hazardous or dangerous chemicals are registered and documented in an online based system, the DAMARIS system (Dangerous Materials Registry Information System), which is also available online for students

- Waste management is organised according to the different types of materials on basis of several legal regulations under the scope of the city of Hannover; and it is variable depending on the institution and clinic.

#### **4.1.6. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of facilities, equipment and biosecurity rules of the Establishment**

- The revision and upgrading of the facilities, equipment as well as biosecurity rules is the responsibility of the different Institutes and Clinics. With regard to upgrading and replacing both premises and equipment, the necessities are recorded by the responsible staff of each place, and they are transmitted to the Presidium, which is responsible for all decisions concerning changes in facilities and equipment. These decisions are discussed with the Senate, which confirm the plans. The supervision and monetary control is carried out by the Foundation Board on basis of annual reports, internal and external audits.

#### **4.2. Comments**

- Facilities and premises of the Establishment are adequate to ensure veterinary training for undergraduate students. Maintenance and equipment of facilities depends upon the Institutes and Clinics, and during the visitation, several differences between the clinics and institutes were observed. Particularly, the building maintenance of Physiology and the Bovine Clinic were not as well developed when compared to other Clinics such as Equine Hospital, Small Animal Hospital, Small mammals and exotics Hospital or Clinical Skills labs, which were highly well maintained and equipped
- Biosafety and Biosecurity measures of the Establishment are generally of a high standard, as is demonstrated by the ostentation of the label “Ökoprofit”, an audit concerning environmentally sound management of waste and energy, awarded by the city of Hannover. However, since biosafety and biosecurity are dependent upon the institutes/clinics, in some of them, in the Pathology and Bovine clinics, procedures are not properly signalled nor followed. There were several examples in some laboratories and clinics where safety protocols were not displayed and signs were missing either on the door or walls. In addition, in some institutes, first aid boxes were poorly stocked, partially empty or containing out of date materials, while in other Institutes the boxes were clearly regularly maintained. An adequate hygiene-barrier must be in place, to avoid possible cross contamination between ‘clean’ and ‘possibly infected’, e.g. at the pathology department
- Establishing a new research centre for emerging infections and zoonoses, which strengthens one of the major research focuses of the TiHo.

#### **4.3 Suggestions for improvement**

- The **building** maintenance of Physiology and the Bovine Clinic should be improved. Awareness on biosafety and biosecurity signing and adherence to biosafety/biosecurity protocols should be increased, for example in Pathology. A general SOP on biosafety and biosecurity of the Establishment must be created and implemented through all the different institutions, laboratories and clinics. There has to be a responsible person or committee assigned to control all the Institutes and Clinics, where the biosafety and

biosecurity might be compromised. This biosafety/biosecurity committee must be the responsible for the implementation and revision of the procedures through all the Institutions and Clinics.

**4.4. Decision**

The Establishment is partially compliant with Standard 4 Facilities and Equipment due to one minor deficiency: A central policy on biosecurity should be implemented at the Establishment.

## **5. Animal resources and teaching material of animal origin (see Standards 5.1 to 5.6)**

### **5.1. Findings**

#### **5.1.1. Brief description of the global strategy of the Establishment about the use of animals and material of animal origin for the acquisition by each student of Day One Competences**

- All animals and patients at the two sites of the TiHo, at the Farm for Education and Research in Ruthe and at the two field stations are used for teaching of undergraduate and graduate students and for research. The number of animals available for teaching is described in tables 5.1.1 to 5.1.7 of the SER. The Establishment has a strong focus on herd health management and medicine and on farm animals clinical service, with sufficient herds and cases available for student training
- Besides the live animals, TiHo also developed the Clinical Skills Lab, where students can practise different skills voluntarily, but also mandatory before the start some specific clinics in their Practical Year (for example a week in there before starting Small Animal rotation).

#### **5.1.2. Description of the adequacy for the veterinary training of the enrolled students of:**

##### **1. the number and diversity of cadavers and material of animal origin used in anatomy, necropsy and FSQ**

- The number and diversity of cadavers and material of animal origin used in anatomy, necropsy and FSQ, as described in the SER, are adequate (see table 5.1.2 and table 5.1.6. and the EAEVE Indicators (standard 12) in the SER).

##### **2. the number and diversity of healthy live animals used for pre-clinical training**

- The number and diversity of healthy live animals for pre-clinical training (Animal Handling, physiology animal production and propaedeutic studies), as described in the SER, are adequate (see table 5.1.2 and the EAEVE Indicators in the SER).

##### **3. the number of visits in herds/flocks/units of food-producing animals**

- The number of visits related to food-producing animals, as described in the SER, is adequate (see table 5.1.7 and the Indicators in the SER).

##### **4. the number and diversity of patients examined/treated by each student**

- The number and diversity of patients examined / treated by each student, as described in the SER, are adequate (see table 5.1.3 to 5.1.5 and the Indicators as described in the SER). Additional purchase of animals, especially cattle, small ruminants and pigs, is undertaken for particular practical exercises such as anatomy and special surgical techniques like bovine caesarean sections.

##### **5. the balance between species, between clinical disciplines, between first opinion and referral cases, between acute and chronic cases, between consultations and hospitalisations, between individual medicine and population medicine**

- The number of first opinion patients and referral patients are balanced for the needs for teaching. About one third of patients in the clinics are first opinion cases and two thirds

are referrals. The numbers and the balance of cases in the clinical units are periodically evaluated (PDCA-cycle).

### **5.1.3. Description of the organisation and management of the VTH and ambulatory clinics**

- All clinics, except the poultry clinic, offer 52 weeks per year general consulting with five days per week from 8 am to 5 pm complemented by emergency service at night (5 pm to 8 am) and 24h at weekends. Hospitalization, emergencies and intensive care units are offered by all clinics except by the poultry clinic and ambulatory service. The number of animals seen in the ambulatory clinics is adequate and described in table 5.1.4 of the SER.

### **5.1.4. Description of the group size for the different types of clinical training and of the hands-on involvement of students in clinical procedures in the different species**

- The group sizes in the clinical settings varies, from 2-4 students per patient / supervisor in the Practical Year, which is in the 9<sup>th</sup> to 10<sup>th</sup> semester (depending on the rotation principle in the clinical units), to 50-80 in the observations within the 6<sup>th</sup> -8<sup>th</sup> semester., although in the latter case 4-5 students are selectively chosen for a more hands on approach. A more detailed description of the group sizes for the different types of clinical training is presented in table 5.1.6. of the SER.

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

- The patient record system EasyVeT is used at the Establishment. This record system is also used in many commercial veterinary practices. Students have the possibility to read the data to prepare case discussions or to record information. The system is also used during clinical examinations and, for example, laboratory and diagnostic imaging results can also be stored in the patient file.

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

- The Establishment has to apply for permission for all use of normal animals for educational or research reasons from the competent authority. Housing conditions are controlled regularly according to the Directive 2010/63/EU. To support the animal welfare officers the university has appointed an animal welfare committee (for members see 1.1.5).

### **5.1.7. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of the number and variety of animals and material of animal origin for pre-clinical and clinical training, and the clinical services provided by the Establishment**

- The process of assessment and revision of the number and variety of animals and material of animal origin for pre-clinical and clinical training and clinical service is based on a clear PDCA-cycle. Stakeholders, staff and students are involved in relevant

steps. Feedback based on discussions with students and (mandatory) student evaluations are the main sources for information in the 'Check phase'. The process is described in fig. 5.1 of the SER.

## **5.2. Comments**

- The Establishment is commended for their creative and innovative solutions when delivering the curriculum within the constraints of the TAppV.

## **5.3. Suggestions for improvement**

None.

## **5.4. Decision**

The Establishment is compliant with Standard 5 animal resources and teaching material of animal origin.

## **6. Learning resources (see Standards 6.1 to 6.4)**

### **6.1 Findings**

#### **6.1.1. Brief description of the main library (facilities, equipment, staff, (e)books and (e)periodicals, software for databases)**

- The Establishment library is located on the Bünteweg campus, in a relatively small, adapted building that was not originally built for that purpose.
- The library is linked to all of the libraries in Hannover. The staff and students have access to all of the University libraries in Hannover. The library is also open to the public, and is used by veterinarians in the surrounding practices. The on-site library is open 6 days a week, and has 95 study stations. The library has a budget which permits purchase of resources based on student and staff requests.
- The principal librarian is a qualified librarian, and also a qualified veterinary surgeon (Master in Library and Information Science), and heads up a staff totalling 14 FTEs
- Resources include physical books and periodicals, and electronic versions (e-books, and e-journals). Electronic databases and catalogues are searched using the bespoke bibliographical search system *VetSearch*. This search process may be accessed locally and remotely.

Library physical stock as of the end of 2016 included:

27,109 veterinary monographs,  
9,677 textbooks  
71,699 dissertations (incl. 11,000 online resources)  
7,705 veterinary proceedings,  
574 journals in print

Library stock of e-resources, as of end of 2016:

274 veterinary e-books, 2,894 e-books of related life sciences,  
7,296 licensed e-journals  
11,000 electronic dissertations,  
1,436 digitized historical veterinary monographs

#### **6.1.2. Description of the available electronic information and e-learning courses, and their role in supporting student learning and teaching in the core curriculum**

- The Department of Information Technology and Data Processing (IDS) is led by an IT specialist who is also a veterinarian. The IDS provides IT-administration services, providing support for 1,200 employees and 2,400 students and approximately 1,600 Desktop-PCs and laptops. There is a campus-wide IT-based management system which provides for management of student data.
- The Establishment uses an in-house developed management platform (TiHoStudIS/DozIS) with restricted access to students and staff, to provide online access, both on and off-campus, to e-learning materials, and also self-service registration and access to other functions. As of 2017, E-learning delivery is currently

through the use of the bespoke, locally written virtual learning platform TiHoStudIS, but there are plans to migrate to the commercially available platform Moodle™, for reasons relating to ongoing support. The library e-resources aid in student researching, and include access to, and training in the bibliographical search engine and citation tool Endnote

- In support of staff and student use of the e-facilities, the Establishment has set up an e-learning facility or “hub”, staffed by veterinarians. The primary function of this resource is to promote e-learning and the use of e-resources by both teaching staff and students. The group are research-active and have produced a number of publications.

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

- Both main campuses are supported with Wi-Fi, and the Establishment also participates in Eduroam, the international roaming service for users in research, higher education and further education. A broad range of e-services are available to staff and students both on and off-campus, including email, and file cloud storage. Library searches may be accessed both on an off-site.
- The Establishment maintains a well-resourced Clinical Skills laboratory (CSL) on the Bischofsholer Damm Campus. The CSL was established in 2013, and was the first veterinary CSL in Germany. The facility is set up in the old, vacated veterinary clinic, and contains an extensive range of clinical skills videos, some created in conjunction with Bristol School of Veterinary Medicine, freely available on the Establishment’s own YouTube channel TiHoVideos.

### **6.1.4. Description of how the procedures for access to and use of learning resources are taught to students**

- At the start of the first semester, incoming students are provided with training by IDS staff on how to access the core IT services, including using IT infrastructure (e.g. TiHo-Card, E-mail account, file service and printing) and of the information platform TiHoStudIS. The introduction to the library also starts during the week of first year. Further training in bibliographic searching is offered by the library staff in later years. The Head of IT also provides the necessary training in the electronic medical record system to both staff and students.
- Students are introduced to the clinical skills laboratory in their early years, although use of the CSL at that stage is not mandatory. The aims of the CSL are to provide early and ongoing practical exposure to clinical skills over the course of study; the acquisition of practical skills before performing interventions on live animals, and to build practical competencies in students.

### **6.1.5. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of learning resources**

- Library resources are reviewed and renewed based on staff and student

recommendation and by input by the library commission, a committee composed of representatives from the groups of professors, scientific as well as technical assistants and students. New supplies of e-learning tutorials are discussed with teaching staff in the e-learning commission, and decided by the Presidium and Vice President for Teaching.

- The CSL is identified by academic staff as a valuable addition to the teaching repertoire, and there has been considerable input from the clinical staff, and particularly surgical staff, into the development of resources within the CSL. The development of resources is well-resourced and supported by internal and external funding. Students can give comments and suggestions in the evaluations they have to fill in.

## **6.2. Comments**

- The Establishment is to be commended for its development of the Clinical Skills Laboratory, and the use of validation tools to demonstrate the effectiveness of the models as teaching tools
- On the other hand, the Library does not appear to be an attractive learning space for students. There does not appear to be centralised identified facilities, other than the CSL, for independent and collaborative learning.

## **6.3. Suggestions for improvement**

- It is suggested that the Establishment seeks funding for an increase in individual self-study and small group learning spaces. Consideration could be given to upgrading the learning spaces within the current library or the development of new library which would incorporate up-to-date interactive and collaborative learning spaces.

## **6.4. Decision**

The Establishment is compliant with Standard 6 Learning resources.

## **7. Student admission, progression and welfare (see Standards 7.1 to 7.15)**

### **7.1. Findings**

#### **7.1.1. Brief description of the admission procedures for standard and for full-fee students**

The TiHo has no full-fee students. Some of the places are reserved according to German national legislation:

1. 5% of the places are reserved to students from abroad (Non-EU states) who send their application directly to TiHo
  2. 2% of the places are reserved for disabled or ill applicants.
- Admission of “standard students” (i.e. students from Germany or other EU-countries) is regulated by law (“Staatsvertrag”). Potential students send their application to a central Foundation for University Admissions. This Foundation then allocates 20% of student places directly to applicants with the highest school leaving grades, and another 20% of student places to applicants who are on a waiting list
  - TiHo then allocates the remaining 60% of student places. This is done by offering an admission test to applicants who have listed TiHo as a first priority. Students applying for veterinary medicine as a second study or for PhD programmes also submit a motivational letter. Following the test, TiHo ranks applications based on the test (weight 1/3) and the average school leaving grade (weight 2/3). A bonus system is also included favouring natural sciences in school and additional vocational training related to the veterinary profession
  - There is no appeal process due to legal regulation of admission (see 7.1.2).

#### **7.1.2. Description of how the Establishment adapts the number of admitted students to the available educational resources and the biosecurity and welfare requirements**

- The number of students admitted each year is restricted, 254 students in 2017. As described earlier, this number is calculated annually on the basis of budget-staff and is fixed in the objective agreement with the ministry for sciences and culture about study offer (Studienangebotszielvereinbarung). Essentially, the Teaching Obligation Regulation of Lower Saxony (LVVO) specifies the fixed number of hours to be taught per year by each faculty member. The sum of the individual teaching hours to be given results in the total teaching capacity. The Total Teaching Capacity together with the Teaching Capacity Regulation of Lower Saxony (KapVO) of Lower Saxony form the basis for the number of students to be admitted each semester
- There is no appeal process. It is only possible to do legal action against the calculated admission number of students.

#### **7.1.3. Description of the progression criteria and procedures, the available remediation and supports, the rate and main causes of attrition**

- The requirements are regulated by the TAppV and by the specific conditions of study of the TiHo. The examinations are divided into three parts, and passing one part is a prerequisite for entering the subsequent one. Failed examinations must be repeated at the end of the exam period (second chance) or otherwise in the following semester (third chance, always oral)
- Students will only be admitted to examinations if they can show proof of regular and

successful participation in courses defined by the study programme and, in some courses, after passing the partial summative exams

- In cases of a failed examination the students have the possibility to appeal to the head of the administration unit of student's affairs, the Presidium or the liaison lecturer. These people also invite students with repetitively bad marks to a personal consultation
- For students with obvious learning problems a contact to the psychological service is made. TiHo also offers elective courses for methods of learning. For students with disability or chronic illness who cannot take part in normal examinations, alternative examination formats in the frame of TAppV are offered on an individual basis
- All procedures concerning learning progress, exclusion and appeal are published on bill-boards or e-boards (StudIS). In the beginning of the programme the students are guided by tutors. When there are special individual problems, students get help from staff in student's affairs office
- A "Progress Test Tiermedizin" has been offered to the students every year in December, open for ten days. It is a formative test to check the study progression and performance online-based by oneself
- Attrition is low, about 1-2 % over all study years. About 10-15% of the students, who started their study at TiHo, leave the TiHo before final exams, in most cases because they changed university or study programme in the first two years. All spots that then become available are filled with veterinary students from other Establishments.

#### **7.1.4. Brief description of the services available for students**

- The students can find most of the information required in the main building of administration on Bünteweg Campus covering all main services dealing with registration and information on teaching activities. For all students' affairs, the General Students Committee (AStA) supports students and mediates between administration, professors and students. There is also a link to the two student parishes
- Annual influenza vaccinations are offered. There is no mandatory requirement for vaccination status of the students before starting practicals (e.g. tetanus).

#### **7.1.5. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of the admission procedures, the admission criteria, the number of admitted students and the services to students**

- TiHo has no influence on the number of students admitted. Admission of "standard students" (i.e. students from Germany or other EU-countries) is regulated by law ("Staatsvertrag")
- The admission test at TiHo for has been validated with veterinary professionals from various specialties. Test questions are randomized annually, and the test questions were in 2016 evaluated and updated by an external and accredited institute.

#### **7.2. Comments**

- TiHo has an overall low drop-out rate, indicating that the admission procedure is effective
- More than 80% of the students, admitted at the first year, graduate. All spots that become available are filled with students from other Establishments
- The efforts of the TiHo to extend the tutor system for first-year students is to be

encouraged.

**7.3. Suggestions for improvement**

None.

**7.4. Decision**

The Establishment is compliant with Standard 7 Student admission, progression and welfare.

## **8. Student assessment (see Standards 8.1 to 8.9)**

### **8.1. Findings**

#### **8.1.1. Brief description of the student's assessment strategy of the Establishment**

The TiHo strategy and goals concerning assessment procedure are that all students must know the required condition for assessments, are fairly treated by examiners and are objectively assessed.

#### **8.1.2. Description of the assessment methodology to ensure that every graduate has achieved the minimum level of competence, as prescribed in the ESEVT Day One Competences**

- The TiHo examination regulations are based on TAppV which rules on the examination formats. These TiHo regulations determine that students in general have to pass an examination before continuing their course of study. Failed examinations must be repeated at the end of the exam period (second chance) or otherwise in the following semester (third chance, always oral)
- Teachers must formulate the learning goals of the topics in the catalogue of learning goals (Lernzielkatalog), which are integrated into assessments, one example being the formative examinations in anatomy. The learning goals according to TAppV and EAEVE Day One Competences are updated on a regular basis. All students have access to this catalogue published in the intranet
- TiHo uses two global categories of assessment methods in the study programme:
  1. Formative assessment: To get information about improvement of knowledge, students can undertake the “Progress Test Tiermedizin (PTT)”, solve e-learning cases in CASUS and test themselves with PowerVote quizzes during lectures. In addition, Objective Structured Clinical Examination (OSCE) during the Practical Year test their knowledge and practical skills.
  2. Summative assessment: Assessments covering all topics according to TAppV are performed during the lectures free periods and in the 11th semester.
- During the semesters, students have to pass accompanying certificates (PO Section 4) which dictate permission for examination. The clinics and institutes provide regulations for practical training (Praktikumsordnung) about form and content of these continuous examinations, which are controlled by the commission of curricular affairs
- In general, examinations methods encompass a range of different methodologies and include Multiple Choice (MC), Structured Oral (-practical) Examination (SOE), Objective Structured Practical Examination (OSPE), and Objective Structured Clinical Examination (OSCE). Theoretical knowledge is in general assessed by MC and SOE
- Pre-clinical skills are assessed using written and oral exams as well as OSCE (formative) in Clinical Skills Lab, and MC for most theoretical subjects
- Clinical practical skills are assessed as formative procedure as OSCE in Clinical Skills Lab and as summative procedure as SOE.

#### **8.1.4. Description of the processes for providing to students a feedback post-assessment and a guidance for requested improvement**

- After the written exams, students have possibilities to access the examination documents and can complain and discuss it within the online platform. Students also

have to fill in at least five evaluation forms over different courses after they took those exams

- Examination Regulations with detailed definitions and description of examinations are available in inter- and intranet pages. In an elective course and tutorial on YouTube–Chanel “TiHoVideos”, students can learn about the procedure of electronic examinations at the TiHo. Furthermore, more examples of written examination are published on intranet
- The assessment regulation in accordance to TAppV has the disadvantage for students in only finding out at the end of a study year if their learning outcomes are achieved to continue their studies. Therefore, the TiHo makes an effort to give students a chance to check their competences before assessments at the end of a study year, especially by means of the voluntary Progress Test Tiermedizin (PTT), where students receive feedback on knowledge for their individual learning strategy. The PTT has been offered to students in Hannover since 2013. The content of PTT is referring to day one competencies as defined by the European Association of Establishments for Veterinary Education (EAEVE) and consists of 136 multiple-choice questions covering 34 subjects in undergraduate education. Students, who take part several times, will get information about their improvement in relation to former PPT participation
- Other feedback measures include the continuously performed formative examinations during the lectures and clinical training practicals, for example oral or written Pre- and Posttests
- Regular and successful participation forms a prerequisite for admission to the examination. Furthermore, discussions and reviews with lecturers, for example in the case of report writing, encourage students to reflect on their learning strategy.

#### **8.1.5. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of the student’s assessment strategy**

- A Quality circle (Plan; Do; Check; Act) has been implemented with staff involved in all stages and students are included (by means of participation in the Commission for Curricular Affairs) in the Plan; Check and Act stages. Internal stakeholders (e.g. examiners, Vice-president for teaching, Senate) are all involved in appropriate stages.

#### **8.2. Comments**

- The TiHo has already initiated an education research project with the aim to improve competency-based teaching and assessment measures. The continued expansion and usage of the Clinical Skills Lab is also considered to be highly effective
- Student assessments are well programmed, managed and monitored by the TiHo at all levels
- A Quality circle that includes relevant stakeholders (students, teachers and administration) has been developed and implemented
- The new on-line system for reviewing written examination questions is commendable
- Also, the plans to include the Clinical Skills Lab in both formal and summative assessment is commendable.

#### **8.3. Suggestions for improvement**

- Encourage the formalization of use of the logbooks for feedback to the students regarding their development in relevant competencies and ensuring that all clinical

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procedures, practical and hands-on training planned in the study programme have been completed by each individual student and, in addition, checked for such completeness by staff in the TiHo.

### **8.4. Decision**

The Establishment is compliant with Standard 8 Student Assessment.

## **9. Academic and support staff** (see Standards 9.1 to 9.6)

### **9.1. Findings**

#### **9.1.1. Brief description of the global strategy in order to ensure that all requested competences for the veterinary programme are covered for both academic and support and that they are properly qualified and prepared for their roles**

- The selection process for teaching staff (professorship) follows the Intern Guideline for Appointment. The process includes a profile paper (with the requested competences) and a selection of the most suitable person by the Commission for Appointment, with the final decision taken by the senate and confirmed by the Foundation Board
- The appointment procedure for scientific and support staff is under the responsibility of the Heads of Departments or Clinics, which formulate the profile and are responsible for advertisement and selection of applicants. Finally, the department of HR is responsible for the contract of employment
- All the academic staff, employed in budget posts, are required to spend their working time for teaching and research; the Teaching Obligation Regulation of Lower Saxony (LVVO) orders a teaching load of 9 hours per semester week for professors, 10 hours for permanent scientific staff and 4 hours for temporary scientific staff
- It is essential for academic staff to get trained in teaching and assessing students. The TiHo offers and support different courses for the teaching staff, including a “Professional Teaching Course”, which comprises 200 hours. This course is mandatory for new teachers who do not have enough teaching training, and also, it is mandatory for the habilitation process to achieve a Lecturer or Full Professor position. Likewise, there are different continuous educational courses for teaching staff, including a course on expertise on teaching and a leadership course, which are not mandatory, but highly recommended. All of these courses are financed by the Establishment. Furthermore, the E-Learning-Consulting of the TiHo offers several workshops, tutorials and consultations around the year concerning teaching and assessment procedures, all supported by the Establishment
- For academic staff, the distribution of tasks is, 35% teaching, 35% clinical, 35% research; however, it is highly variable depending on the clinics and institutes
- With regard to support staff, the selection and recruiting of staff is a combined process with the participation of Institutes, Clinics and the administration. Technical staff are involved in their professional growth; they have monthly meetings, where they formulate proposals about their needs. There are also meetings/workshops in the evenings about leading skills, communication skills, etc.
- Technical staff are trained before entering the TiHo and can also receive further training, but this is not mandatory and it depends on the varying Institutes and clinics.

#### **9.1.2. Description of the adequacy of the number of academic and support staff in the different departments/units with the number of students to be taught**

There are different methods of communication between the different management structures (Senate, Presidium, Commissions) and the Clinics and Institutes in order to ensure the adequacy of the number of the teaching and technical staff.

**9.1.3. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of the strategy for allocating, recruiting, promoting, supporting and assessing academic and support staff**

- The Foundation Board of Trustees, once a year decides the recruitment plan, with the budgeted positions as part of the business plan. Approval of this Board is required when increasing the staff positions. Cost neutral changes in posts in the University facilities can be made by the Presidium during the current business year. The staffing plan contains an overview of the distribution of the posts to the individual TiHo institutes
- The allocation of budgeted staff follows the teaching load and is relatively constant due to constant duties. Teaching personal is supported by technical staff and special student assistants to enhance quality of teaching. Employee committee and the equal opportunity commissioner are involved in the decision and implementation of personnel matters.

**9.2. Comments**

- The teaching and support staff of the Establishment is adequate to assure practical and theoretical teaching for undergraduate students. The general procedure of appraisal, development, supporting and mentoring of both academic and support staff is adequately carried out on an individual basis within the departments and the clinics
- The Establishment is to be commended on the extent of the pedagogical training provided to both new and established teaching staff.

**9.3. Suggestions for improvement**

None.

**9.4. Decision**

The Establishment is compliant with Standard 9 Academic and Support Staff.

## **10. Research programmes, continuing and postgraduate education (see Standards 10.1 to 10.4)**

### **10.1. Findings**

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

*Education at TiHo is research driven, primarily by the implementation of scientific data, both from external and internal research projects, into the lectures by the academic staff.*

- Furthermore, to introduce students into scientific literature, online tutorials, a workshop on bibliographic database management, and session as part of different lectures (e.g. pharmacology), are in place to teach the features of search engines, databases, catalogues and discovery systems and the elaboration of effective search strategies. Undergraduates are stimulated to reflect, and discuss on research topics during dedicated lectures, seminars as part of compulsory elective courses, and Journal Clubs. Topics such as evidence-based medicine, Good Scientific Practice and ethics are incorporated in the discussion of clinical cases during the training, and in the practical year in particular.
- For many research programmes, there are announcements for undergraduate student research assistants. This offers the possibility to get first-hand experiences in research processes during the training. Undergraduates are also invited to take part at scientific meetings and presentations of doctorate and PhD-students, and are informed about summer school opportunities, both at the own or national institutes or abroad
- There is no demand for a graduate (Master) thesis in the programme, though each student has to prepare several case reports, and in the practical year, a scientific report/presentation about an actual disease, health problem or clinical patient has to be presented
- All undergraduate students are given the possibility to conduct a research project during the practical year, of which 20% (40-20) per year finally do. These students have the opportunity to perform a specific research practical of 10 weeks duration where they work on own small research project, which commonly is part of a larger scientific project, and often leads to an international scientific publication later on.

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

- The Institutes offer several postgraduate programmes, of which internship and residency at a European college and training for national specialist (“Fachtierarzt”) include clinical training. Post-graduates are actively involved in the clinical training of undergraduates, and the caseload in the clinics is sufficiently high for both post- and undergraduate trainings, in particular within the electives. Patient admission, treatment, diagnostic procedures and routine surgeries are performed by postgraduate staff, always assisted by at least one undergraduate student. Students take part at rotations through different specialist areas, have chances to talk with the owners and assume responsibility

- To ensure that the basic surgical skills can be acquired by all undergraduates, surgery wet labs are organised partly with purchased or in-house healthy animals, and purchased tissues/organs.

### **10.1.3. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of research, continuing and postgraduate education programmes organised by the Establishment**

- There is no real centralised structure in place that develops, implements, assesses and revises the different undergraduate research education programmes. Institutes mainly advertise the own different undergraduate research projects during lectures and practical courses, already at the fifth semester. The number of projects offered outnumber the demand. If selection of students for a certain project is needed, intake is based on an interview by the institute involved
- Post-graduate education programmes comprise the doctoral training (2 years) and the PhD. The PhD-programmes are in the Hannover Graduate School for Veterinary Pathobiology, Neuroinfectiology, and Translational Medicine (HGNI), and aim to provide a structured doctoral programme of guaranteed quality. The HGNI is composed of different organisational units including an international scientific advisory board. The tasks of the scientific advisory board are in particular recommendations and evaluations for defining the HGNI qualification concept, recommendations and evaluations for scientific and/or structural development of the HGNI, as well as participation in internal evaluation of the HGNI. The structured programme of study, and the doctoral degree and the procedures of the individual PhD programmes are defined in the PhD Regulations
- Programmes of the doctoral programmes (Dr. med. vet and Dr. rer. nat.), taken by about 75% of the graduates, are less rigidly structured. Commissions (staff and students) are in place regulating both programmes including, selection of applicants, verification the projects (ethical issues, animal welfare, feasibility), supervision and assessment. On admission to the Graduate Programme, each doctoral candidate enters into a supervision agreement with his or her teams of supervisors in which the rights and duties are laid down
- The university organize various continuing education courses of which some take place in cooperation or on demand of external partners such as the Chamber of Veterinarians of Lower Saxony and state institutes, and are recognised by the Academy for Veterinary Continuing Education. Teachers are also frequent guest speakers in externally organised Continuous Professional Education (CPE) programmes. In addition, the Establishment also offers e-learning and blended learning as continuing education, including the mandatory refresher course in radiation safety.

### **10.2. Comments**

- The Establishment is to be commended on the voluntary uptake of research projects by undergraduates which often lead to a significant number of publications in good impact journals
- The undergraduate curriculum does not explicitly address training in scientific method and research techniques relevant to Evidence-Based Veterinary Medicine (EBVM). While it is clear that many Institutes address this in the research projects and during the Practical Year, the visitors were not assured that all students received this training.

**10.3. Suggestions for improvement**

- Stimulate all the students to train in scientific thinking and handling, including bibliographic search, scientific writing and appropriate citation, from the earliest years in the curriculum
- Explicitly involve the principles of 'Evidence Based Veterinary Medicine' in all clinical training and report writing for all students.

**10.4. Decision**

The Establishment is partially compliant with Standard 10 due to: The Establishment should implement training in scientific methods and research techniques relevant to Evidence Based Veterinary Medicine for all students.

## **11. Outcome Assessment and Quality Assurance** (see Standards 11.1 to 11.10)

### **11.1. Findings**

#### **11.1.1. Description of the global strategy of the Establishment for outcome assessment and Quality Assurance (QA), in order to demonstrate that the Establishment:**

- ) **has a culture of QA and continued enhancement of quality;**
  - ) **operates *ad hoc*, cyclical, sustainable and transparent outcome assessment, QA and quality enhancement mechanisms;**
  - ) **collect, analyse and use relevant information from internal and external sources for the effective management of their programmes and activities (*teaching, research, services*);**
  - ) **informs regularly staff, students and stakeholders and involves them in the QA processes;**
  - ) **closes the loop of the QA Plan-Do-Check-Act (PDCA) cycle;**
  - ) **is compliant with ESG Standards.**
- TiHo states on its public website that TiHo provides its students an excellent education in all areas of veterinary medicine in a broad context ranging from fundamental research to practical clinical training. The curriculum of the TiHo is also constantly under review within an ongoing dialogue among students, teachers and practitioners in order to ensure everything possible is done within its legal framework to meet new challenges arising within the discipline and in society. It is the aim of the TiHo to enable its students to think independently and to seek solutions to problems, thus preparing them for lifelong learning.

#### **TiHo has formulated a global strategy for Outcome assessment and Quality Assurance. The strategy aims:**

- to integrate the cyclical analysis of quantitative and qualitative indicators for achievement of objectives in future plans and developing teaching and research environment
- to discuss all plans with the relevant commissions
- to directly and precisely inform all staff, students and other stakeholders
- to secure that all relevant external conditions, like laws, legal regulation, ESG standards for external evaluations, are considered

#### **In more detail:**

- The Presidium is responsible for all decisions concerning quality assurance strategy. The Presidium discusses the QA strategy with the Senate, who confirm it after review in the commissions. An important commission in this circle of QA is the university developmental commission (HEK)
- The Presidium obtains information needed for QA strategy and decision making from board position quality management in close cooperation with strategic controlling, where all information concerning quality assurance is centrally bundled. The measures and data come from board position strategic development including controlling and internal audit and from the administration units (finances, human resources, student and academic affairs, real estates and technology, IDS) and units
- After decision about future strategy of QA processes, this is communicated to staff and students by protocols, official journal/gazette, internet information, newsletter and others

- The external stakeholders are informed by external available webpages and the TiHo-journals. The implementation, assessment and revision are performed by administration, relevant commissions and finally by Senate and Presidium
- A circle of quality assurance at the TiHo has been developed and includes Plan; Do, Check, Act as well as listing all relevant internal committees (some of which also include students and staff) and external stakeholders. The circle has been running for years and has recently been formulated into a intuitive figure. An example is the fulfilment of some of the goals in the Agreement on Objectives with the Government of Lower Saxony (i.e. development and introduction of new courses in “Prevention of examination anxiety” and “Business economics”, and introduction of the progression test
- For management of the programme and activities, a special commission or working group, in which the representatives of all status groups are involved, is set-up for every task and issue. The group of students represents at least half of the members of a commission, if the issue is relevant for students, for example commission for curricular affairs or commission for study quality budget
- Staff, students and stakeholders are regularly informed and involved in the QA processes in a variety of ways, e.g. through TiHo Mission statement, Internal regulations and guidelines on the internet, Intranet, a TiHo Journal, public meetings and protocols, General announcements. An example is how the decision to include a requirement for new professors to also have a EBVS (or ACVM) diplomate degree in relevant areas was made and communicated.

#### **11.1.2. Brief description of the specific QA processes for each ESEVT Standards**

**Objectives and Organisation:** The strategic plan and the organisation of the TiHo are based on the mission statement, which is drafted with the University Developmental Commission, approved by the senate and leading to the target areas and the Agreement on Objectives with the government (see 1.1.2). This is reviewed regularly between officials of the Ministry of Science and Culture and the Presidium of the TiHo.

**Finances:** Presidium is responsible for all decisions concerning financial plans. Presidium discusses these plans annually with the Senate. The supervision and monetary control is carried out by the Foundation Board on basis of annual reports, internal and external audits. The use of special Budget for Study Quality (Studienqualitätsmittel, SQM) is discussed and decided by the Commission for Study Quality Budget together with Presidium.

**Curriculum:** The educational aims are described by national “Ordinance concerning the Certification of Veterinary Surgeons” (TAppV) leading to a general approbation. The TiHo cannot change the curriculum in general terms. All decisions on curricular matters are discussed in the commission for curricular affairs and a recommendation is submitted to the Senate for approval. Course contents are determined by the institute or clinic responsible for teaching and are discussed and decided in the four Expert Commissions. Course contents are published on the intranet to facilitate arrangement between different institutes and clinics. A recent example is a course in Economics that external practitioners have asked for. This course has now been established as an elective course and currently there is discussions with the other veterinary Establishments in Germany as to advocate this being part of the TAppV.

**Facilities:** Presidium is responsible for all decisions concerning changes and developing in facilities and equipment. Presidium discusses these plans with the senate that confirm the plans. The supervision and monetary control is carried out by the Foundation Board on basis of annual reports, internal and external audits.

**Animal resources and teaching material of animal origin:** The processes concerning needed animals and material of animal origin for teaching are set-up in a Quality circle (Plan, Do, Check, Act) which involves relevant internal stakeholders appropriately.

**Learning Resources:** The library commission includes representatives from the groups of professors, scientific as well as technical assistants and students. The students have the possibility to express their requests in a letter- and book-box outside of the library or in the students` evaluation. New supplies of e-learning tutorials and conceptions are discussed with teachers in the e-learning commission and decided from Presidium and vice president for teaching. The IT-developmental planning and larger expenditures and investments need the approval of the Presidium.

**Student admission, progression and welfare:** TiHo has no influence on the number of students admitted. Admission of “standard students” (i.e. students from Germany or other EU-countries) is regulated by law (“Staatsvertrag”). The admission test at TiHo for has been validated with veterinary professionals from various specialties. Test questions are randomized annually, and the test questions were in 2016 evaluated and updated by an external and accredited institute.

**Student assessment:** A Quality circle (Plan; Do; Check; Act) has been implemented with staff involved in all stages and students included (by means of participation in the Commission for Curricular Affairs) in the Plan; Check and Act stages. Internal stakeholders (e.g. examiners, Vice-president for teaching, Senate) and all involved in appropriate stages. An example is introduction of the new online system for reviewing written examination questions.

**Academic and support staff:** The appointment procedure of professors is based on is based on Lower Saxony University Law and follows the Intern Guideline for Appointment. The general procedure of appraisal, development, supporting and mentoring of both academic and support staff is carried out on an individual basis in the departments and clinics. The assessment of teaching quality by students follows the internal regulation of evaluation (Evaluationsordnung) according to the requirements given in the Lower Saxony University Law.

**Research programmes, continuing and postgraduate education:** The TAppV includes no mandatory research project for undergraduate students. However, highly formalized research projects are performed in postgraduate studies (PhD, Dr. med. vet.). The PhD-programmes joined in the Hannover Graduate School for Veterinary Pathobiology, Neuroinfectiology, and Translational Medicine (HGNI), has a scientific advisory board in place for recommendations and evaluations for defining the HGNI qualification concept, recommendations and evaluations for scientific and/or structural development of the HGNI, as well as participation in internal evaluation of the HGNI. For the Programmes of the doctoral programmes, commissions (staff and students) are in place regulating both programmes including, selection of applicants, verification the projects (ethical issues, animal welfare, feasibility), supervision and assessment.

**Others:**

- The TiHo has a tool for quality assurance in research called “Hochschulindex”. This index considers the summary of quantitative measures about amount of research grants and publications per year for each institute and clinic. The index is being reviewed annually and is a basis for decision making in Presidium, university developmental commission (HEK) and senate for future developments. Furthermore, it leads to internal performance-related allocation of investment budget
- The Presidium discusses at least once per semester actual problems with student representatives (ASTA, Studentenparlament). Urgent matters can be brought in a fast and direct way to involved personnel or to respective commissions for decision making
- An overview of which courses aim towards which EAEVE Day-1 competencies has been made by asking each professor specifically to secure that all Day-1 competencies are covered
- A number of laboratories at TiHo are ISO-accredited, e.g. in microbiology, for swine fever, and in food safety; however, not all laboratories are subjected to external quality control.

There is a national accreditation for all educations in Germany. However, given a positive ESEVT accreditation this will substitute the need for the national accreditation.

**11.1.3. Brief description of the process and the implication of staff, students and stakeholders in the development, implementation, assessment and revision of the QA strategy of the Establishment**

The processes and implications of staff, students and stakeholders in the development, implementation, assessment and revision of the QA Strategy are described under the QA cycle 11.1.1.

**11.2. Comments**

- The TiHo has a policy for quality assurance that is made public and forms part of the strategic management at the TiHo. Internal stakeholders develop and implement the policy through appropriate structures and processes. External stakeholders are also involved
- The TiHo consistently apply pre-defined and published regulations covering all phases of the student “life cycle”, e.g. student admission, progression, recognition and certification
- Outcome assessment and QA cycle are well developed and TiHo is compliant with ESG Standards and Guidelines.

**11.3. Suggestions for improvement**

- The efforts of TiHo to further formalise the internal review process (i.e. essentially making an overview of all QA processes that are running) is to be encouraged
- A more widespread use of external quality control/assessment for laboratories is encouraged.

**11.4. Decision**

The Establishment is compliant with Standard 11 Outcome Assessment and Quality Assurance.

## 12. ESEVT Indicators

### 12.1. Factual information

	University of Veterinary Medicine Hannover	30 <sup>th</sup> September 2017			
	Raw data from the last 3 full academic years	2016	2015	2014	Mean
1	n° of FTE academic staff involved in veterinary training	194	196	195	195
2	n° of undergraduate students	1,614	1,621	1,614	1,616
3	n° of FTE veterinarians involved in veterinary training	142	139	140	140
4	n° of students graduating annually	241	237	238	239
5	n° of FTE support staff involved in veterinary training	274	265	264	268
6	n° of hours of practical (non-clinical) training	1,100	1,100	1,100	1,100
7	n° of hours of clinical training	1,466	1,466	1,466	1,466
8	n° of hours of FSQ & VPH training	287	287	287	287
9	n° of hours of extra-mural practical training in FSQ & VPH	250	250	250	250
10	n° of companion animal patients seen intra-murally	15,650	15,407	14,267	15,108
11	n° of ruminant and pig patients seen intra-murally	1,920	2,105	1,900	1,975
12	n° of equine patients seen intra-murally	3,213	3,322	2,901	3145
13	n° of rabbit, rodent, bird and exotic patients seen intra-murally	6,534	6,391	5,749	6,225
14	n° of companion animal patients seen extramurally	0	0	0	0
15	n° of individual ruminants and pig patients seen extramurally	11,322	10,521	9,512	10,452
16	n° of equine patients seen extramurally	125	150	131	135
17	n° of visits to ruminant and pig herds	2,360	2,211	2,310	2,294
18	n° of visits of poultry and farmed rabbit units	38	52	39	43
19	n° of companion animal necropsies	340	361	338	346
20	n° of ruminant and pig necropsies	1,939	2,112	1,555	1,869
21	n° of equine necropsies	142	124	125	125
22	n° of rabbit, rodent, bird and exotic pet necropsies	737	615	632	661
23	n° of FTE specialised veterinarians involved in veterinary training	126	124	125	125
24	n° of PhD graduating annually	179	174	162	172

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		<b>TiHo</b>	<b>Median</b>	<b>Minimal</b>	<b>Balance</b>
	<b>Calculated Indicators from raw data</b>	<b>values</b>	<b>values</b>	<b>values</b>	
I1	n° FTE academic staff involved in veterinary training / n° undergraduate students	0.12*	0.16	0.13	-0.01
I2	n° FTE veterinarians involved in veterinary training / n° students graduating annually	0.59*	0.87	0.59	0.00
I3	n° FTE support staff involved in veterinary training / n° students graduating annually	1.12	0.94	0.57	0.56
I4	n° hours of practical (non-clinical) training	1,100.00	905.67	595.00	505.00
I5	n° hours of clinical training	1466	932.92	670.00	796.00
I6	n° hours of FSQ & VPH training	287.00	287.00	174.40	112.60
I7	n° hours of extra-mural practical training in FSQ & VPH	250.00	68.00	28.80	221.20
I8	n° companion animal patients seen intra-murally / n° students graduating annually	63.30	70.48	42.01	21.29
I9	n° ruminant and pig patients seen intra-murally / n° students graduating annually	8.28	2.69	0.46	7.81
I10	n° equine patients seen intra-murally / n° students graduating annually	13.18	5.05	1.30	11.88
I11	n° rabbit, rodent, bird and exotic seen intra-murally / n° students graduating annually	26.08	3.35	1.55	24.54
I12	n° companion animal patients seen extra-murally / n° students graduating annually	0.00	n/a	n/a	n/a
I13	n° individual ruminants and pig patients seen extra-murally / n° students graduating annually	43.79	15.95	6.29	37.50
I14	n° equine patients seen extra-murally / n° students graduating annually	0.57	2.11	0.60	-0.03
I15	n° visits to ruminant and pig herds / n° students graduating annually	9.61	1.33	0.55	9.06
I16	n° visits of poultry and farmed rabbit units / n° students graduating annually	0.18	0.12	0.04	0.14
I17	n° companion animal necropsies / n° students graduating annually	1.45	2.07	1.40	0.05
I18	n° ruminant and pig necropsies / n° students graduating annually	7.83	2.32	0.97	6.86
I19	n° equine necropsies / n° students graduating annually	0.54	0.30	0.09	0.45
I20	n° rabbit, rodent, bird and exotic pet necropsies / n° students graduating annually	2.77	2.05	0.69	2.08
I21	n° of FTE specialised veterinarians involved in veterinary training / n° of students graduating annually	0.52	0.20	0.06	0.46
I22	n° of PhD graduating annually / n° of students graduating annually	0.72	0.15	0.09	0.63

\* **I1 I2** Due to the Teaching Capacity Regulation of Lower Saxony, the indicators are calculated on the basis of budgeted academic staff. Every further budgeted scientific position would lead to higher number of undergraduate students. Non-budgeted temporary academic staff is not considered in the calculation of the student number due to the Teaching Capacity Regulation of Lower Saxony. But staff paid by clinical income are involved in the instruction of students, e. g. in the practical year. If considering this group in the calculation, the indicator 11 rises up to a value of 0.14. Considering also student assistants the value of indicator 11 increases to 0.15.

**13. ESEVT Rubrics** (summary of the decision on the compliance of the Establishment for each ESEVT Standard, i.e. (total or substantial) compliance (C), partial compliance (PC) (Minor Deficiency) or non-compliance (NC) (Major Deficiency))

<b>Standard 1: Objectives and Organisation</b>	<b>C</b>	<b>PC</b>	<b>NC</b>
1.1. The Establishment must have as its main objective to provide, in agreement with the EU Directives and ESG recommendations, adequate, ethical, research-based, evidence-based veterinary training that enables the new graduate to perform as a veterinarian capable of entering all commonly recognised branches of the veterinary profession and to be aware of the importance of lifelong learning.	x		
1.2. The Establishment must develop and follow its mission statement which must embrace all the ESEVT standards.	x		
1.3. The Establishment must be part of a university or a higher education institution providing training recognised as being of an equivalent level and formally recognised as such in the respective country.	x		
1.4. The person responsible for the veterinary curriculum and the person(s) responsible for the professional, ethical, and academic affairs of the Veterinary Teaching Hospital (VTH) must hold a veterinary degree.	x		
1.5. The organisational structure must allow input not only from staff and students but also from external stakeholders.	x		
1.6. The Establishment must have a strategic plan, which includes a SWOT analysis of its current activities, a list of objectives, and an operating plan with timeframe and indicators for its implementation.	x		
<b>Standard 2: Finances</b>			
2.1. Finances must be demonstrably adequate to sustain the requirements for the Establishment to meet its mission and to achieve its objectives for education, research and services.	x		
2.2. The finance report must include both expenditures and revenues and must separate personnel costs, operating costs, maintenance costs and equipment.	x		
2.3. Resources allocation must be regularly reviewed to ensure that available resources meet the requirements.	x		
2.4. Clinical and field services must function as instructional resources. Instructional integrity of these resources must take priority over financial self-sufficiency of clinical services operations. Clinics must be run as efficiently as possible.	x		
2.5. The Establishment must have sufficient autonomy in order to use the resources to implement its strategic plan and to meet the ESEVT Standards.	x		
<b>Standard 3: Curriculum</b>			
3.1. The curriculum must be designed, resourced and managed to ensure all graduates have achieved the graduate attributes expected to be fully compliant with the EU Directive 2005/36/EC as amended by directive 2013/55/EU and its Annex V.4.1.	x		
3.2. The learning outcomes for the programme must be explicitly articulated to form a cohesive framework.	x		
3.3. Programme learning outcomes must be communicated to staff and students and:  - ) underpin and ensure the effective alignment of all content, teaching, learning and assessment activities of the degree programme;  - ) form the basis for explicit statements of the objectives and learning outcomes of individual units of study;  - ) be regularly reviewed, managed and updated to ensure they remain relevant, adequate and are effectively achieved.	x		
3.4. The Establishment must have a formally constituted committee structure (which includes effective student representation), with clear and empowered reporting lines, to oversee and manage the curriculum and its delivery. The committee(s) must:  - ) determine the pedagogical basis, design, delivery methods and assessment methods of the curriculum,  - ) oversee QA of the curriculum, particularly gathering, evaluating, making change and responding to feedback from stakeholders, peer reviewers and external assessors, and data from examination/assessment outcomes,  - ) review the curriculum at least every seven years by involving staff, students and stakeholders,	x		

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-) identify and meet training needs for all types of staff, maintaining and enhancing their competence for the on-going curriculum development.			
3.5. The curriculum must include the subjects (input) listed in Annex V of EU Directive 2005/36/EC and must allow the acquisition of the Day One Competences (output) (see Annex 2).  This must concern all groups of subjects, i.e. Basic Sciences, Clinical Sciences, Animal Production, Food Safety and Quality, and Professional Knowledge.	x		
3.6. External Practical Training (EPT) are training activities organised outside the Establishment, the student being under the direct supervision of a non academic person (e.g. a practitioner). EPT cannot replace the core intramural training nor the extramural training under the close supervision of academic staff (e.g. ambulatory clinics, herds visits, practical training in FSQ).	x		
3.7. Since the veterinary degree is a professional qualification with Day One Competences, EPT must complement and strengthen the academic education by enhancing for the student the handling of all common domestic animals, the understanding of the economics and management of animal units and veterinary practices, the communication skills for all aspects of veterinary work, the hands-on practical and clinical training, the real-life experience, and the employability of the prospective graduate.	x		
3.8. The EPT providers must have an agreement with the Establishment and the student (in order to fix their respective rights and duties, including insurance matters), provide a standardised evaluation of the performance of the student during their EPT and be allowed to provide feedback to the Establishment on the EPT programme.	x		
3.9. There must be a member of the academic staff responsible for the overall supervision of the EPT, including liaison with EPT providers.	x		
3.10. Students must take responsibility for their own learning during EPT. This includes preparing properly before each placement, keeping a proper record of their experience during EPT by using a logbook provided by the Establishment and evaluating the EPT. Students must be allowed to complain officially or anonymously about issues occurring during EPT.	x		
<b>Standard 4: Facilities and equipment</b>			
4.1. All aspects of the physical facilities must provide an environment conducive to learning.	x		
4.2. The veterinary Establishment must have a clear strategy and programme for maintaining and upgrading its buildings and equipment.	x		
4.3. Lecture theatres, teaching laboratories, tutorial rooms, clinical facilities and other teaching spaces must be adequate in number, size and equipped for the instructional purposes and must be well maintained. The facilities must be adapted for the number of students enrolled.	x		
4.4. Students must have ready access to adequate and sufficient study, self-learning, recreation, locker, sanitary and food services facilities.	x		
4.5. Offices, teaching preparation and research laboratories must be sufficient for the needs of the academic and support staff.	x		
4.6. Facilities must comply with all relevant legislation including health, safety, biosecurity and EU animal welfare and care standards.		x	
4.7. The Establishment's livestock facilities, animal housing, core clinical teaching facilities and equipment must:  -) be sufficient in capacity and adapted for the number of students enrolled in order to allow hands-on training for all students  -) be of a high standard, well maintained and fit for purpose  -) promote best husbandry, welfare and management practices  -) ensure relevant biosecurity and bio-containment  -) be designed to enhance learning.	x		
4.8. Core clinical teaching facilities must be provided in a VTH with 24/7 emergency services at least for companion animals and equines, where the Establishment can unequivocally demonstrate that standard of education and clinical research are compliant with all ESEVT Standards, e.g. research-based and evidence-based clinical training supervised by academic staff trained to teach and to assess, availability for staff and students of facilities and patients for performing clinical research and relevant QA procedures. For ruminants and pigs, on-call service must be	x		

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available if emergency services do not exist for those species in a VTH. The Establishment must ensure state-of-the-art standards of teaching clinics which remain comparable with the best available in the private sector.			
4.9. The VTH and any hospitals, practices and facilities (including EPT) which are involved with the curriculum must meet the relevant national Practice Standards.	x		
4.10. All core teaching sites must provide dedicated learning spaces including adequate internet access.	x		
4.11. The Establishment must ensure students have access to a broad range of diagnostic and therapeutic facilities, including but not limited to: pharmacy, diagnostic imaging, anaesthesia, clinical pathology, intensive/critical care, surgeries and treatment facilities, ambulatory services and necropsy facilities.	x		
4.12. Operational policies and procedures (including biosecurity, good laboratory practice and good clinical practice) must be taught and posted for students, staff and visitors.	x		
4.13. Appropriate isolation facilities must be provided to meet the need for the isolation and containment of animals with communicable diseases. Such isolation facilities must be properly constructed, ventilated, maintained and operated to provide for animal care in accordance with updated methods for prevention of spread of infectious agents. They must be adapted to all animal types commonly handled in the VTH.	x		
4.14. The Establishment must have an ambulatory clinic for production animals or equivalent facilities so that students can practise field veterinary medicine and Herd Health Management under academic supervision.	x		
4.15. The transport of students, live animals, cadavers, materials from animal origin and other teaching materials must be done in agreement with national and EU standards, to ensure the safety of students and staff and to prevent the spread of infectious agents.	x		
<b>Standard 5: Animal resources and teaching material of animal origin</b>			
5.1. The number and variety of healthy and diseased animals, cadavers, and material of animal origin must be adequate for providing the practical training (in the area of Basic Sciences, Clinical Sciences, Pathology, Animal Production, Food Safety and Quality) and adapted to the number of students enrolled.	x		
5.2. It is essential that a diverse and sufficient number of surgical and medical cases in all common domestic animals and exotic pets be available for the students' clinical educational experience and hands-on training.	x		
5.3. In addition to the training provided in the Establishment, experience can include practical training at external sites, provided this training is organised under direct academic supervision and at the same standards as those applied in the Establishment.	x		
5.4. The VTH must provide nursing care skills and instruction in nursing procedures.	x		
5.5. Under all situations students must be active participants in the workup of patients, including physical diagnosis and diagnostic problem oriented decision making.	x		
5.6. Medical records must be comprehensive and maintained in an effective retrieval system (preferably an electronic patient record system) to efficiently support the teaching, research, and service programmes of the Establishment.	x		
<b>Standard 6: Learning resources</b>			
6.1. State-of-the-art learning resources must be available to support veterinary education, research, services and continuing education. Timely access to learning resources, whether through print, electronic media or other means, must be available to students and staff and, when appropriate, to stakeholders. State-of-the-art procedures for bibliographical search and for access to databases and learning resources must be taught to undergraduate students.	x		
6.2. Staff and students must have full access on site to an academic library, which is administered by a qualified librarian, an Information Technology (IT) unit, which is managed by an IT expert, an e-learning platform, and the relevant human and physical resources necessary for development by the staff and use by the students of instructional materials.	x		
6.3. The Establishment must provide students with unimpeded access to learning resources which include scientific and other relevant literature, internet and internal study resources, and equipment for the development of procedural skills (e.g. models). The use of these resources must be aligned with the pedagogical environment and learning outcomes within the programme, and have mechanisms in place to evaluate the teaching value of innovations in learning resources.	x		
6.4. The relevant electronic information, database and other intranet resources must be easily available for students and staff both in the Establishment's core facilities via wireless connection (Wi-Fi) and from outside the Establishment via Virtual Private Network (VPN).	x		
<b>Standard 7: Student admission, progression and welfare</b>			

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7.1. The selection criteria for admission to the programme must be consistent with the mission of the Establishment. The number of students admitted must be consistent with the resources available at the Establishment for staff, buildings, equipment, healthy and diseased animals, and materials of animal origin.	x		
7.2. In relation to enrolment, the Establishment must provide accurate information in all advertisements regarding the educational programme by providing clear and current information for prospective students. Further, printed catalogue and electronic information must state the purpose and goals of the programme, provide admission requirements, criteria and procedures, state degree requirements, present Establishment descriptions, clearly state information on tuition and fees along with procedures for withdrawal, give necessary information for financial aid programmes, and provide an accurate academic calendar.	x		
7.3. The Establishment's website must mention the ESEVT Establishment's status and its last Self Evaluation Report and Visitation Report must be easily available for the public.  Not applicable.	x		
7.4. The selection and progression criteria must be clearly defined, consistent, and defensible, be free of discrimination or bias, and take account of the fact that students are admitted with a view to their entry to the veterinary profession in due course.	x		
7.5. The Establishment must regularly review and reflect on the selection processes to ensure they are appropriate for students to complete the programme successfully, including consideration of their potential to meet all the ESEVT Day One Competences in all common domestic species (see Annex 2).	x		
7.6. Adequate training (including periodic refresher training) must be provided for those involved in the selection process to ensure applicants are evaluated fairly and consistently.	x		
7.7. There must be clear policies and procedures on how applicants with disabilities or illnesses will be considered and, if appropriate, accommodated in the programme, taking into account the requirement that all students must be capable of meeting the ESEVT Day One Competences by the time they graduate.	x		
7.8. The basis for decisions on progression (including academic progression and professional fitness to practise) must be explicit and readily available to the students. The Establishment must provide evidence that it has mechanisms in place to identify and provide remediation and appropriate support (including termination) for students who are not performing adequately.	x		
7.9. The Establishment must have mechanisms in place to monitor attrition and progression and be able to respond and amend admission selection criteria (if permitted by national or university law) and student support if required.	x		
7.10. Mechanisms for the exclusion of students from the programme for any reason must be explicit.	x		
7.11. Establishment policies for managing appeals against decisions, including admissions, academic and progression decisions and exclusion, must be transparent and publicly available.	x		
7.12. Provisions must be made by the Establishment to support the physical, emotional and welfare needs of students. This includes, but is not limited to, learning support and counselling services, careers advice, and fair and transparent mechanisms for dealing with student illness, impairment and disability during the programme. This shall include provision of reasonable accommodations/adjustments for disabled students, consistent with all relevant equality and/or human rights legislation.	x		
7.13. There must be effective mechanisms for resolution of student grievances (e.g. interpersonal conflict or harassment).	x		
7.14. Mechanisms must be in place by which students can convey their needs and wants to the Establishment.	x		
7.15. The Establishment must provide students with a mechanism, anonymously if they wish, to offer suggestions, comments and complaints regarding compliance of the Establishment with the ESEVT standards.	x		
<b>Standard 8: Student assessment</b>			
8.1. The Establishment must ensure that there is a clearly identified structure within the Establishment showing lines of responsibility for the assessment strategy to ensure coherence of the overall assessment regime and to allow the demonstration of progressive development across the programme towards entry level competence.	x		
8.2. The assessment tasks and grading criteria for each unit of study in the programme must be clearly identified and available to students in a timely manner well in advance of the assessment.	x		
8.3. Requirements to pass must be explicit.	x		
8.4. Mechanisms for students to appeal against assessment outcomes must be explicit.	x		

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8.5. The Establishment must have a process in place to review assessment outcomes and to change assessment strategies when required.	x		
8.6. Programme learning outcomes covering the full range of professional knowledge, skills, competences and attributes must form the basis for assessment design and underpin decisions on progression.	x		
8.7. Students must receive timely feedback on their assessments.	x		
8.8. Assessment strategies must allow the Establishment to certify student achievement of learning objectives at the level of the programme and individual units of study.	x		
8.9. Methods of formative and summative assessment must be valid and reliable and comprise a variety of approaches. Direct assessment of clinical skills and Day One Competences (some of which may be on simulated patients), must form a significant component of the overall process of assessment. It must also include the quality control of the students' logbooks in order to ensure that all clinical procedures, practical and hands-on training planned in the study programme have been fully completed by each individual student.	x		
<b>Standard 9: Academic and support staff</b>			
9.1. The Establishment must ensure that all staff are appropriately qualified and prepared for their roles, in agreement with the national and EU regulations. A formal training (including good teaching and evaluation practices, learning and e-learning resources, biosecurity and QA procedures) must be in place for all staff involved with teaching. Most FTE academic staff involved in veterinary training must be veterinarians. It is expected that greater than 2/3 of the instruction that the students receive, as determined by student teaching hours, is delivered by qualified veterinarians.	x		
9.2. The total number, qualifications and skills of all staff involved with the programme, including teaching staff, 'adjunct' staff, technical, administrative and support staff, must be sufficient and appropriate to deliver the educational programme and fulfil the Establishment's mission.	x		
9.3. Staff who participate in teaching must have received the relevant training and qualifications and must display competence and effective teaching skills in all relevant aspects of the curriculum that they teach, regardless of whether they are full or part time, residents, interns or other postgraduate students, adjuncts or off-campus contracted teachers.	x		
9.4. Academic positions must offer the security and benefits necessary to maintain stability, continuity, and competence of the academic staff. Academic staff should have a balanced workload of teaching, research and service depending on their role; and should have reasonable opportunity and resources for participation in scholarly activities.	x		
9.5. The Establishment must provide evidence that it utilises a well-defined, comprehensive and publicised programme for the professional growth and development of academic and support staff, including formal appraisal and informal mentoring procedures. Staff must have the opportunity to contribute to the Establishment's direction and decision making processes.	x		
9.6. Promotion criteria for academic and support staff must be clear and explicit. Promotions for teaching staff must recognise excellence in, and (if permitted by the national or university law) place equal emphasis on all aspects of teaching (including clinical teaching), research, service and other scholarly activities.	x		
<b>Standard 10: Research programmes, continuing and postgraduate education</b>			
10.1. The Establishment must demonstrate significant and broad research activities of staff that integrate with and strengthen the veterinary degree programme through research-based teaching.	x		
10.2. All students must be trained in scientific method and research techniques relevant to evidence-based veterinary medicine.		x	
10.3. All students must have opportunities to participate in research programmes.	x		
10.4. The Establishment must provide advanced postgraduate degree programmes, e.g. PhD, internships, residencies and continuing education programmes that complement and strengthen the veterinary degree programme and are relevant to the needs of the profession and society.	x		
<b>Standard 11: Outcome Assessment and Quality Assurance</b>			
11.1. The Establishment must have a policy for quality assurance that is made public and forms part of their strategic management. Internal stakeholders must develop and implement this policy through appropriate structures and processes, while involving external stakeholders.	x		
11.2. The Establishment must have processes for the design and approval of their programmes. The programmes must be designed so that they meet the objectives set for them, including the intended learning outcomes. The qualification resulting from a programme must be clearly specified and communicated, and refer to the correct	x		

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level of the national qualifications framework for higher education and, consequently, to the Framework for Qualifications of the European Higher Education Area.			
11.3. The Establishment must ensure that the programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach.	x		
11.4. The Establishment must consistently apply pre-defined and published regulations covering all phases of the student "life cycle", e.g. student admission, progression, recognition and certification.	x		
11.5. The Establishment must assure themselves of the competence of their teachers. They must apply fair and transparent processes for the recruitment and development of staff.	x		
11.6. The Establishment must have appropriate funding for learning and teaching activities and ensure that adequate and readily accessible learning resources and student support are provided.	x		
11.7. The Establishment must ensure that they collect, analyse and use relevant information for the effective management of their programmes and other activities.	x		
11.8. The Establishment must publish information about their activities, including programmes, which is clear, accurate, objective, up-to date and readily accessible.	x		
11.9. The Establishment must monitor and periodically review their programmes to ensure that they achieve the objectives set for them and respond to the needs of students and society. These reviews must lead to continuous improvement of the programme. Any action planned or taken as a result must be communicated to all those concerned.	x		
11.10. The Establishment must undergo external quality assurance in line with the ESG on a cyclical basis.	x		
<i>C: (total or substantial) compliance; PC: partial compliance (Minor Deficiency); NC: non-compliance (Major Deficiency)</i>			

## **Executive Summary**

The University of Veterinary Medicine Hannover (referred to in this report and Executive Summary as TiHo) was established in 1778, making it one of the oldest veterinary schools in Europe. While for many years part of the university system in Hannover, in 2003 the TiHo became an endowed public university operating as a foundation within Lower Saxony (one of only a handful of similar Establishments in Lower Saxony).

Although being recognised as a foundation allows TiHo a degree of freedom both in the financial sense as well as developing its own curriculum, there are national guidelines which apply to all German Veterinary Establishments. One such guideline is that governed by a German Federal ordinance which sets the standards to be applied across all courses in Veterinary Medicine in Germany; this ordinance is referred to as the TAppV (Verordnung zur Approbation von Tierärztinnen und Tierärzten). In practice, these national guidelines elicit a sense of stability in the programme whilst still allowing a marked degree of flexibility, which the TiHo has applied with a variety of innovative approaches throughout the study programme.

The TiHo was last evaluated by ESEVT in 2008, where no major deficiencies were found, although a number of minor deficiencies and suggestions were made by the visitation team.

These suggestions have since been implemented by the TiHo, for example:

- Wi-Fi now accessible throughout the whole campus area
- The amount of practical training has been increased in comparison to didactic teaching
- The introduction of two obligatory examiners for oral examinations
- The expansion of the Clinical Skills Lab and its further integration into the curriculum; the Lab now has 36 units for training of specific clinical-practical skills and, importantly, is open to all students
- Following additional input from a number of external stakeholders, the introduction of new electives such as those considering economical and ethical subjects.

The SER was provided on time and written in full agreement with the Uppsala SOP; It was a well written document with detailed appendices. An unusually long list of questions was sent to the Establishment prior to the visitation and the Establishment should be congratulated for their swift and very comprehensive replies to these questions. The SER actually understated the quality of teaching as witnessed by the visitation team during the week.

The Visitation was very well organised and the Liaison Officer, the President and his three Vice-Presidents worked well together to develop the schedule of the Visitation. All the relevant documentation was provided within the base room and further documentation was efficiently provided when requested by the team. Finally, and despite the crowded timetable and inclement weather, all the relevant meetings and visits outside the main faculty buildings were well organised and fruitful.

### **Areas worthy of praise (i.e. Commendations):**

- The Establishment are to be commended for their use of the flexibility within the TAppV
- Establishing a new research centre for emerging infections and zoonoses, which

- strengthens one of the major research focuses of the TiHo
- The continued expansion of the clinical skills lab is a very valuable facility for the Establishment, and students from all years are increasingly taking advantage of this excellent unit
  - The Establishment is to be commended for the extensive and excellent opportunities for the students for intensive clinical training at the teaching farm at Ruthe, and the Field station for Epidemiology at Bakum
  - The Establishment is also commended for its ambulatory service, which provides first opinion clinical services to a number of farms within the Hannover area. This service provides hands-on clinical experience to all students, in a small group setting (3 students per vehicle) prior to the final Practical Year.
  - The in-house post-mortem inspection and food production facility, and the presence of specialized technical staff, allows for an excellent student tailored professional training
  - The Establishment pays serious attention to evaluating the EPT reports and the results, clearly presented to the visitation team, demonstrated that the overall satisfaction of both the students and the stakeholders (veterinarians in private practices)
  - The Establishment is to be commended on the extent of the pedagogical training provided to both new and established teaching staff
  - The Establishment is to be commended on the voluntary uptake of research projects by undergraduates which often lead to a significant number of publications in good impact journals
  - Outcome assessment and the QA cycle are well developed and TiHo is compliant with ESG Standards and Guidelines.

**Several comments are listed above within the Visitation Report, but some examples are:**

- Given the importance of the mandatory EPT, a more formal and centrally organisation of the handling of the EPT is suggested
- It is suggested to incorporate additional (elective) practical training Animal Welfare, Animal Husbandry, Breeding and Agriculture on the teaching farm in Ruthe
- Attention should be paid to obtain a more standardised training offered by each individual local veterinarian in the different slaughterhouses selected by the students for EPT. Training in didactic skills should be available for the local veterinarians dealing with EPT in FSQ
- It is suggested that the Establishment seeks funding for an increase in individual self-study and small group learning spaces
- Given the importance of the mandatory EPT, a more formal organisation of the handling of the EPT is suggested
- Although there are effective examples e.g. at the Clinic of Poultry, maintenance of other departments such as in the bovine clinic, physiology and pathology laboratories must be upgraded more regularly
- Although the tutor system for undergraduates was discontinued, due to poor compliance, an effort should be made to reintroduce and reinvigorate the tutor system, especially for first-year students
- The logbooks for feedback to the students regarding their development in relevant competencies must be checked for completeness by staff in the TiHo
- The efforts of TiHo to further formalise the internal review process (i.e. essentially making an overview of all QA processes that are running) is to be encouraged

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- A more widespread use of external quality control/assessment for laboratories is to be encouraged.

### **ECOVE identified a number of items of partial compliance (i.e. Minor Deficiencies):**

- A central policy on biosecurity should be implemented at the Establishment
- The curriculum should more explicitly address training in the scientific method and research techniques relevant to evidence-based veterinary medicine.

### **ECOVE identified no items of non-compliance (i.e. Major Deficiency)**

## **Glossary**

*(Please use the same terminology and abbreviations as in the ESEVT SOP when possible)*

EAEVE: European Association of Establishments for Veterinary Education

EBVS: European Board of Veterinary Specialisation

ECOVE: European Committee on Veterinary Education

EPT: External Practical Training

ESEVT: European System of Evaluation of Veterinary Training

ESG: Standards and Guidelines for Quality Assurance in the European Higher Education Area

FSQ: Food Safety and Quality

FTE: Full-Time Equivalent

IT: Information Technology

QA: Quality Assurance

SER: Self Evaluation Report

SOP: Standard Operating Procedure

VPH: Veterinary Public Health

VTH: Veterinary Teaching Hospital

### **Standardised terminology**

**Accreditation:** status of an Establishment that is considered by ECOVE as compliant with the ESEVT Standards normally for a 7 years period starting at the date of the last (full) Visitation;

**Establishment:** the official and legal unit that organise the veterinary degree as a whole, either a university, faculty, school, department, institute;

Ambulatory clinic: clinical training done extra-murally and fully supervised by academic trained teachers;

**Establishment's Head:** the person who officially chairs the above described Establishment, i.e. Rector, Dean, Director, Head of Department, President, Principal...;

External Practical Training: clinical and practical training done extra-murally and fully supervised by non academic staff (e.g. practitioners);

**Major Deficiency:** a deficiency that significantly affects the quality of education and the Establishment's compliance with the ESEVT Standards;

**Minor Deficiency:** a deficiency that does not significantly affect the quality of education or the Establishment's compliance with the ESEVT Standards;

**Visitation:** a full visitation organised on-site in agreement with the ESEVT SOP in order to evaluate if the veterinary degree provided by the visited Establishment is compliant with all ESEVT Standards; any chronological reference to 'the Visitation' means the first day of the full on-site visitation;

**Visitation Report:** a document prepared by the Visitation Team, corrected for factual errors and finally issued by ECOVE; it contains, for each ESEVT Standard, findings, comments, suggestions and identified deficiencies.

## **Decision of ECOVE**

The Committee concluded that no Major Deficiencies had been found.

The ‘University of Veterinary Medicine, Hannover (TiHo Hannover)’ is therefore classified as holding the status of: **ACCREDITATION**.