



**Universiteit Utrecht**  
*Faculty of Veterinary Medicine*

# **Programme Outcomes of the Veterinary Curriculum**

*January 2006*



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The Project Group for Programme Outcomes  
of the Veterinary Curriculum

*Utrecht, January 2006*

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## Preface

Commissioned by the Education Board for Veterinary Medicine, the Project Group for programme outcomes of the Veterinary Curriculum has worked with great enthusiasm to draw up programme outcomes of the veterinary curriculum.

The Project Group's research has included study of a wide range of reference on programme outcomes for veterinary, medical and biomedical curricula and how these are formulated in other institutions, both nationally and internationally.

The Project Group would like thank the authors of Training of doctors - blueprint 1994<sup>(1)</sup> and Training of doctors - blueprint 2001<sup>(2)</sup> which have been the basis of the model that has been used for these programme outcomes of the veterinary curriculum.

The Project Group would also like to thank the Professors and the Chairmen of the Educational Working Groups of the Faculty of Veterinary Medicine and the boards of the groups of the Royal Veterinary Association of the Netherlands (RVAN) for the many helpful comments which they gave on the draft of the Programme Outcomes<sup>1</sup>.

## List of Abbreviations

AVMA	American Veterinary Medical Association
CA	Companion Animals
CVMA	Canadian Veterinary Medical Association
Dept.	Department
EAEVE	European Association of Establishments for Veterinary Education
EEC	European Economic Community
EU	European Union
FA	Farm Animals
FVE	Federation of Veterinarians of Europe
H	Horses
HACCP	Hazard Analysis and Critical Control Points
M&P	Management and Policy
RVAN	Royal Veterinary Association of the Netherlands
SANCO	SANté et protection des CONsommateurs
SR	Scientific Research
VPH	Veterinary Public Health

<sup>1</sup> In this report where the term 'veterinarian' is used, what is meant is a veterinarian immediately after graduation. Where in the report the term 'public health' is used, then 'food safety' is also implicitly meant.

## 1 Introduction

### 1.1 Reasons for the Programme Outcomes of the Veterinary Curriculum project

In the past ten years, a great deal has happened in the area of educational innovation within the Faculty of Veterinary Medicine. With the development and implementation of Curriculum 1995<sup>(3)</sup> specific objectives were formulated, the most significant of which concerned the acquisition of:

- problem solving skills
- an academic level of thought and work
- social / communication skills
- a basic competence which is appropriate to the employment market for frontline practice in a species-specific sector of veterinary medicine
- awareness of the importance of lifelong learning

These objectives were closely defined and highlighted with the evolution towards Curriculum 2001<sup>(4)</sup>, the main aims of which are:

- further academic development of the veterinary curriculum
- further (sector/animal species) differentiation with the introduction of separate tracks

In the development and preparation of both curricula, relatively little attention was given to the actual formulation of programme outcomes of the veterinary curriculum.

In the planning stage of Curriculum 1995 general Programme Outcomes for the Veterinarian and for the Scientific Researcher were formulated (Chapter 1, Final report Curriculum Commission, December 1993<sup>(3)</sup>).

In the planning stage for Curriculum 2001, the Education Board drafted the memorandum 'Profile of the Veterinarian'<sup>(5)</sup>. However, no programme outcomes were included in the description of Curriculum 2001 and its relevant additional memorandums<sup>(6,7)</sup>.

Further definition of programme outcomes, resulting in a complete, assessable set of standards for 'knowledge, skills and professional conduct' had not taken place until now.

Educational innovation has become an ongoing process within scientific education. Within the Faculty of Veterinary Medicine, this involves the further development and implementation of Curriculum 2001 and the development of plans for a future Bachelor-Master Curriculum. Professionally, an institutionalised Dutch and European specialist training already exists. Furthermore, accreditation regulations for veterinarians for horses, ruminants, pigs and poultry and a certification system for practices were established or are under development. These developments, within and outside the faculty, led to the Education Board for Veterinary Medicine's decision in 2003 to have Programme Outcomes of the Veterinary Curriculum properly formulated and established.

## 1.2 Goal of the project, as formulated in the assignment from the Education Board<sup>(8)</sup>

*“The formulation of programme outcomes of the veterinary curriculum, concerning both the core curriculum as well as the various tracks. In other words, with which set of ‘knowledge, skills and professional conduct’ is the newly graduate equipped. The programme outcomes must be sufficiently concretely and operationally formulated making it possible to translate them into educational subjects (courses in the preparatory phase and clinical rotations) and into types of assessment.”*

## 1.3 Organisation of the project and process of decision making

The Education Board established a Project Group for Programme Outcomes of the Veterinary Curriculum. This Project Group was assigned to draft the programme outcomes for the general qualified veterinarian, and for the various animal species and sectors of veterinary medicine, as reflected in the different tracks.

The staff composition of the Project Group for Programme Outcomes of the Veterinary Curriculum was as follows:

Dr. Hetty M.G. van Beers	Dept. of Farm Animal Health
Dr. Herman F. Egberink	Dept. of Infectious Diseases & Immunology
Prof. Ludo J. Hellebrekers	Education Board
Prof. Jolle Kirpensteijn	Dept. of Clinical Sciences of Companion Animals
Dr. Len J.A. Lipman	Institute for Risk Assessment Sciences, Veterinary Public Health Division
Dr. Joop B.A. Loomans	Dept. of Equine Sciences
Dr. Wim D.J. Kremer	Dept. of Farm Animal Health
Prof. Peter van Beukelen	Director of Education (until 1-1-2005), Chairman
Dr. Hellen W.G.G.M. van der Maazen	Education and Student Affairs, Official Secretary
Dr. Jan C.M. Haarhuis	Education and Student Affairs, Advisor
Dr. Stefan P.J. Ramaekers	Institute of Education, Advisor

The draft programme outcomes were submitted to the following representatives of the Faculty of Veterinary Medicine and the Royal Veterinary Association of the Netherlands (RVAN) by the Project Group for approval.

Faculty of Veterinary Medicine:

- all chairmen of Educational Working Groups
- all professors

Royal Veterinary Association of the Netherlands, boards of the following groups:

- Netherlands Association for Companion Animal Medicine
- Netherlands Equine Veterinary Association
- Netherlands Bovine Veterinary Association
- Netherlands Porcine Health Association
- Netherlands Poultry Sciences Association
- Veterinary Public Health and Quality Assurance
- Veterinarians in Business
- Farm Animal Practitioners
- Dutch Association of Veterinary Specialists
- Homeopathic Practicing Veterinarians
- Employed Practitioners Interests

All the above mentioned individuals and groups within and outside the faculty have contributed much valuable advice towards the establishment of the Programme Outcomes of the Veterinary Curriculum. However, while the decision making process has involved wide consultation, the programme outcomes have not been determined by some sort of process where ‘the most votes apply’. The Project Group has discussed and carefully considered all advice based on that which the veterinarian must know and be able to do at the conclusion of his curriculum.

The final report of the Project Group was presented to the Education Board for Veterinary Medicine. The Programme Outcomes of the Veterinary Curriculum were then established on 21 December 2005 by the Education Board, after consultation with the Educational Council for Veterinary Medicine on 16 June 2005 and with the approval of the Dean.

The Programme Outcomes of the Veterinary Curriculum will be evaluated on a seven-year cycle and adjusted where necessary. Every evaluation will take place two years prior to the faculty being visited for accreditation of the curriculum. The appendices are evaluated on a two-year cycle and adjusted where necessary. The Education Board will establish an evaluation commission for this purpose.

## 1.4 Who are the Programme Outcomes of the Veterinary Curriculum for?

The Programme Outcomes of the Veterinary Curriculum are a necessary and useful instrument for various target groups before, during or after the veterinary education, such as:

- Students and future students of veterinary medicine: to be informed about the expected capabilities at the conclusion of their curriculum and to be able to assess the translation thereof into components of their curriculum. They will be able to recognise components from the curriculum in the programme outcomes.
- EWG-members and other lecturers taking care of education in the veterinary curriculum: to test the learning objectives / objectives of the educational components in which they develop or provide education based on the programme outcomes, for both the core curriculum as well as in the various tracks. They must translate the programme outcomes into actual education.
- Veterinarians and their organisations: to be able to assess the level of knowledge, skills and professional conduct which can be expected from the recently graduated veterinarian.
- National and international organisations, and government bodies, making use of services of veterinarians: to be able to assess whether the level of the veterinarian who has recently graduated from Utrecht University satisfies the level of activities expected of a veterinarian and in which the veterinarian differs from a non-veterinarian.
- Foreign veterinary faculties, from within and outside the EU: to be able to compare the level of the Utrecht veterinary curriculum with that of their own curriculum.

## 2 Starting points in legislation and regulation

### 2.1 Introduction

In drafting the Programme Outcomes of the Veterinary Curriculum, the legal frameworks within which the curriculum should be offered and the legal frameworks with which the veterinarian will have to deal in practice, were naturally given due consideration. The acts, guidelines and private law regulations mentioned in this chapter are the most significant pillars for the preparation of these programme outcomes. The qualified veterinarian will, in addition, also have to have knowledge of numerous other acts, such as the Veterinary Medications Act, the Health and Welfare Act on Animals, the Meat Inspection Act, the Destruction Act and the Competition Act.

### 2.2 Higher Education and Scientific Research Act

Since 1 August 1993, the Higher Education and Scientific Research Act applies to veterinary education. Prior to this, the Two Phase Structure Act was applicable. The new act does not have two phases in veterinary education, and this has made it possible to combine the clinical practical training and the theoretical education in the curriculum. However, in connection with the legislation regarding student grants and loans, there is an even greater necessity to make the completion of the studies possible in the six years available. This demands careful programming so that waiting periods and other delays are avoided. All components deemed essential will have to be addressed within the curriculum.

### 2.3 Practicing of Veterinary Medicine Act

The Practicing of Veterinary Medicine Act, which is in force since 1990, describes the qualifications of the veterinarian. From this, one can also partly gather what is expected from a veterinarian regarding knowledge, skills and professional conduct.

### 2.4 European Guidelines

Guideline 78/1026/EEC<sup>(9)</sup> indicates how the mutual recognition of diplomas, certificates and other evidence of formal qualifications of veterinarians is regulated. The guideline also contains directions regarding the freedom of establishment of veterinarians and service provision within the EU countries.

Guideline 78/1027/EEC<sup>(10)</sup> indicates how the coordination of the legal and administrative requirements regarding the activities of veterinarians is regulated and also indicates in an appendix which subjects the study programme must at least entail, leading to the diplomas, certificates and other evidence of formal qualifications of veterinarians.

The EU guideline SANCO 1190/2001/Rev. 8<sup>(11)</sup> describes the requirements which the 'official veterinarian' must satisfy.

## 2.5 Accreditation guidelines for the American Veterinary Medical Association (AVMA) / Canadian Veterinary Medical Association (CVMA)

For accreditation of a veterinary curriculum, the American Veterinary Medical Association has drafted the 'Accreditation policies and procedures of the AVMA council on education'<sup>(12)</sup>. The most recent guidelines date from 2005. If a curriculum meets these demands, the graduating veterinarians may, after passing the American or Canadian government exam in veterinary medicine, practice in North America, without the obligation of following an additional education. The Utrecht veterinary curriculum has been accredited by the AVMA / CVMA since 1973.

## 2.6 Accreditation guidelines for the European Association of Establishments for Veterinary Education (EAEVE)

The European Association of Establishments for Veterinary Education laid down a set of 'Standard Operating Procedures'<sup>(13)</sup> in 2002 to assess the European veterinary curricula. This is intended to test whether the veterinary curricula satisfy the minimum demands as set by the EU (78/1026/EEC, 78/1027/EEC). An accreditation system already existed to this end. The Utrecht veterinary curriculum is already accredited under this system since 1992.

## 2.7 Accreditation guidelines for the Association of Cooperating Dutch Universities and the Dutch-Flemish Accreditation Organisation

The veterinary curriculum has also been visited by the Association for Cooperating Dutch Universities since 2000. The Association then accepted the AVMA/EAEVE accreditation as adequate. The Dutch-Flemish Accreditation Organisation has recently been established. With the introduction of the Bachelor-Master structure at the Dutch universities, the Dutch-Flemish Accreditation Organisation takes over the visitation and accreditation from the Association for Cooperating Dutch Universities. In February 2003 the Dutch-Flemish Accreditation Organisation drafted an accreditation framework<sup>(14)</sup> to this end.

## 2.8 Code of Good Veterinary Practice

The code of conduct for veterinarians and for the functioning of the veterinarian in society is described in the Dutch Code of Good veterinary Practice<sup>(15)</sup>, drafted by the Royal Veterinary Association of the Netherlands (RVAN) and the European 'Good Veterinary Practice Code'<sup>(16)</sup>, drafted by the Federation of Veterinarians of Europe (FVE). Here, particular attention was given to the professional responsibility of the veterinarian.

## 2.9 Regulation of the Foundation of the Veterinary Quality Body / starting points of RVAN quality policy

The Foundation of the Veterinary Quality Body has drafted (animal species specific) regulations to clarify the professional qualities of and for veterinarians, and to help make these recognizable. The contents of the curriculum followed by the veterinarian, i.e. the track, is also decisive for the additional training demands set by the professional body as a condition for adequate correlation of the accreditation regulations. The Foundation of the Veterinary Quality Body was recently converted to a Veterinary Administration Association Office.



### 3 Programme Outcomes of the Veterinary Curriculum: explanation and structure

#### 3.1 Explanation

The Programme Outcomes of the Veterinary Curriculum indicate what can be expected of veterinarians at the time that they graduate. In other words, what do newly graduated veterinarians know and what can they do? The practice of veterinary medicine is not static and programme outcomes do not remain valid indefinitely. The continuing developments in the profession, new scientific insights and changing ideas in society all have consequences for the practice of veterinary medicine and the conditions that are imposed upon it. In recent decades there has been, increasingly, a differentiation of the work done by veterinarians into the various sectors of veterinary medicine. This differentiation has led to a division being made in the curriculum between a core curriculum (that all students follow) and various tracks (of which the student only does one).

In view of this, the programme outcomes need to be evaluated regularly and amended as necessary.

Prior to the drafting of these programme outcomes, the Project Group for Programme Outcomes of the Veterinary Curriculum undertook a wide review.

Of course, the Dutch legal context was taken into account, as was the international context in which the curriculum takes place, and national and international guidelines with respect to the practice of veterinary medicine, university education and the accreditation of curricula. At the same time, the programme outcomes of other veterinary and medical curricula, such as those of the British Royal College of Veterinary Schools<sup>(17)</sup>, the Canadian Veterinary College of the University of Guelph<sup>(18)</sup> and the Dutch medical faculties<sup>(1,2)</sup> were also examined.

When describing the programme outcomes, a structure was chosen that is comparable to that of the joint Dutch curricula in Medicine (Training of doctors - blueprint 2001: Programme Outcomes for the Medical Curriculum<sup>(2)</sup>).

This structure fits into current educational views about what constitutes an adequate description of programme outcomes. In addition this also satisfies the curriculum objectives that form the basis of the education innovations since 1995:

- increased animal species and sector differentiation
- learning to solve veterinary problems
- more attention to scientific training
- more attention to communication and professional conduct
- encouragement of life-long learning

### 3.2 Structure of the Programme Outcomes of the Veterinary Curriculum

Every student, graduating in veterinary medicine in one of the faculties within the EU, acquires on graduation **a general authorisation** to practice veterinary medicine in the widest sense, in accordance with European Guidelines.

The 'programme outcomes' constitute the written description of the characteristics that the graduate – as 'end product' of the curriculum – should meet.

The practice of veterinary medicine goes beyond that of separate disciplines. It demands a way of veterinary thought and action in which knowledge, skills and conduct are applied in a coherent manner. Learning to think and act in an integrated veterinary manner is thus a central, cohesive element in the veterinary curriculum. That is why the programme outcomes are formulated independently of the various disciplines.

A qualified veterinarian may be expected to be able to provide adequate veterinary care to kept animals. *Those animal species which are relevant to the programme outcomes* are described in **Chapter 4**. This includes the various categories of use of the animals that are kept, after which a specification of the animal species is given according to categories of use. This classification is important in terms of the division between the core curriculum and its accompanying programme outcomes and the various tracks and their accompanying programme outcomes which are described in the later chapters.

The programme outcomes are described **as concept** in **Chapter 5: 'Profile of the veterinarian at the time of graduation'**. In this chapter there is a description (in general terms) of which capabilities veterinarians must have at their disposal at the time of graduation. The profile can be regarded as the most succinct description of the veterinarian's capabilities at the time of graduation.

In addition to the description of the capabilities of the veterinarian, a more detailed form of this profile is given for all tracks. This detailed form of the profile indicates the limit to the level of care that can be expected from the veterinarian in the sector of his own track versus the other sectors.

The programme outcomes *as an overview of the curriculum requirements* are given in more detail in **Chapters 6 to 9**, the '*general programme outcomes*', and **Chapter 10**, the '*Questions / Problems that the veterinarian may have to face*'.

The '*general programme outcomes*' form the specification of the profile in terms of knowledge, skills and professional conduct.

The '*general programme outcomes*' are divided into **Chapter 6: 'Technical aspects'**, **Chapter 7: 'Scientific aspects'**, **Chapter 8: 'Personal aspects'** and **Chapter 9: 'Social aspects'**.

In these chapters the programme outcomes for both the core curriculum and the tracks are given. Often the programme outcomes will be achieved because attention is paid to them both in the core curriculum as well as in (one or more of) the tracks. These programme outcomes are marked with a • in the column 'General' and, where relevant, with a • in the column(s) of one or more of the tracks.

A limited number of programme outcomes are specific to one (or more) track(s). *These programme outcomes are shown in the tables in italics and with a • only marked in the column(s) of the track(s).*

To be able to speak of a 'general authorisation', both the core curriculum and one of the tracks must have been completed. Knowledge, skills and conduct learned in the part that is specific to the track, constitute an essential part of the training of the generally authorised veterinarian. The general authorisation is thus only acquired when the six-year curriculum is completed successfully.

**Chapter 10**, the '*Questions / Problems that the veterinarian may have to face*', is the specification of the '*general programme outcomes*', in particular of the technical aspects described in **Chapter 6**, formulated in terms of questions or problems that a newly graduated veterinarian must be able to deal with.

This chapter consists of questions or problems that an owner, caretaker or other concerned party could put to the veterinarian in practice. It is not expected that every veterinarian will be able to answer every question in full. However, veterinarians must be able to draw on their expertise to formulate and implement an effective and appropriate response (see the explanation to **Chapter 10: 'Questions / Problems List'**).

The '*Questions / Problems List*' is consequently a guide for the content of the (various parts of the) course.

As appendices to the Programme Outcomes for the Veterinary Curriculum two lists were included: a '*Skills List*' (**Appendix 1**) and a '*Diseases and Syndromes List*' (**Appendix 2**). They are not part of the programme outcomes, but form a guide to the interpretation of the profile, the general programme outcomes and the Questions / Problems List in terms of the (various parts of the) curriculum.

The '*Skills List*' describes which skills the veterinarian should have at the time of graduation, and at what level. Here, a distinction is made between the levels of the core curriculum and the various tracks.

The '*Diseases and Syndromes List*' describes which diseases and syndromes the veterinarian should know about at the time of graduation, and at what level. And here too, a distinction is made between the core curriculum and the track taken.

## 4 Animal species relevant for the programme outcomes

### 4.1 Categories

In the use of animals that are kept, the following categories are distinguished:

- **Production animals:**  
Animals that are kept for the production of meat or other products of animal origin
- **Companion animals (pets):**  
Animals that are kept for companionship
- **Hobby, recreational, sport and working animals:**  
Animals that are kept as a hobby, as a pastime, for recreational purposes, for sports purposes or for specific work tasks
- **Laboratory animals:**  
Animals that are kept for the purpose of (scientific) research and teaching, as laid down in the Netherlands Experiments on Animals Act

### 4.2 Specification of kept animal species and their use

**Cattle** are principally kept as production animals. In addition cattle are kept to a limited extent as a hobby and for recreational purposes, e.g. on children's farms and in wildlife areas.

**Small ruminants** (sheep and goats) are mainly kept as production animals. In addition, they are kept as a hobby and for recreational purposes. To a limited extent, small ruminants are used as laboratory animals.

**Pigs** are mainly kept as production animals. To a limited extent, pigs are kept as laboratory animals, or as a hobby. In the latter context, pot-belly pigs must also be considered.

**Poultry**, which along with hens, includes for example ducks, turkeys and guinea fowl, are primarily kept as production animals. They are also kept as hobby animals.

**Horses**, which also include ponies and donkeys, are mainly kept as pets and for recreational and sports purposes. These animals are kept both professionally (including breeding) and privately. To a limited extent horses, ponies and donkeys are (also) production animals. In addition horses are also kept for work tasks (mounted police).

**Dogs** are mainly kept as pets. They are also kept for sport (agility and dog racing) and they are used for work, for example as police, guard, tracker and rescue dogs, and as assistance dogs. Dogs are also kept professionally for breeding. To a limited extent they are also used as laboratory animals.

**Cats** are mainly kept as pets (and as a hobby animal, including exhibitions). Cats are also kept professionally for breeding. To a limited extent they are also used as laboratory animals.

**Rabbits** are mainly kept as pets and as hobby animals (including breeding and exhibitions). Rabbits are also used to a limited extent as laboratory animals, or kept as production animals.

**Rodents**, in particular rats, mice, guinea pigs and hamsters, are frequently kept as pets. These animal species are very often used as laboratory animals.

**Fur-bearing animals** are kept as pets and as a hobby (ferrets) and to a limited extent for the production of fur (mink).

**Companion birds** (in particular pigeons, various species of parrot and decorative birds) are kept as pets, as a hobby and for sport.

**Other species of animals such as reptiles, amphibians, fish, zoo animals and sea mammals** are kept as a hobby, as pets and for recreational purposes. Fish are also kept as production animals and as laboratory animals. Animal species, such as lamas, deer and ostriches are also kept on a small scale as production animals. The acquisition of knowledge, skills and professional conduct with respect to the veterinary care of these animal species does not lie within the six-year curriculum. The necessary expertise should be acquired in post-graduate training courses. These animal species will therefore not be given any specific attention in this report on Programme Outcomes for the Veterinary Curriculum. In veterinary education, however, aspects of these animal species may well be dealt with if this is important in gaining non-species-specific insights, or for aspects of veterinary public health.

## 5 Profile of the veterinarian by the end of the curriculum

### 5.1 Introduction

Veterinarians have during their curriculum gone through a period of learning (knowledge), training (skills) and instruction (professional conduct). As a result, they are able to practise the profession of veterinarian.

The profile (5.2) indicates what a veterinarian is, what is expected of him and what are his most important characteristics and features. This applies to **all** veterinarians who graduate from the Faculty of Veterinary Medicine of Utrecht University. Subsequently the details of the profile of the veterinarian per track are given (5.3). This relates to the veterinarian working in the sectors: companion animals, horses, farm animals, veterinary public health, 'management and policy', and veterinary research.

Reading this profile, the reader should be very aware of the fact that it relates to recently graduated veterinarians who will still have to develop professionally in many areas, and will need continuing training in the later practice of the profession. It cannot therefore be expected of recently graduated veterinarians that their knowledge, skills and professional conduct should be at the same level as that of a more experienced colleague.

### 5.2 Profile of the veterinarian

The veterinarian is expert, that is to say:

1. has a wide pathobiological, population-biological and scientific insight, in accordance with current insights in science
2. has mastered veterinary problem-solving and is able to form a professional judgment, to take decisions independently and to justify them
3. is able to carry out relevant veterinary activities

The veterinarian acts professional, that is to say:

4. is aware of the social responsibility for the health and the welfare of animals and aspects of public health
5. maintains expertise and is able to deal flexibly with new developments
6. bears in mind limitations in relation to animal species or activities for which insufficient competence may have been acquired

The veterinarian is, moreover:

7. legally competent to practise veterinary medicine independently
8. suitable to commence a further course of training such as a specialisation and/or a course leading to a doctorate

For each aspect mentioned above a short explanation follows.

**1. Has a wide pathobiological, population-biological and scientific insight, in accordance with current insights in science**

Veterinarians are scientifically educated and act in accordance with that. They have a solid foundation of knowledge, insight and experience, with pathophysiology and population biology as the core, based on basic and supporting disciplines, and further elaborated in the various dimensions that relate to animal health, animal welfare, public health and food safety. They can approach information in a scientifically critical manner and are able to form a reasoned opinion about it.

**2. Has mastered veterinary problem-solving and is able to form a professional judgment, to take decisions independently and to justify them**

The veterinarian is able to answer veterinary questions – preventive or curative - by means of examination and analysis, and to determine which approach is suitable. The veterinarian does this in a methodical manner, i.e. purposefully, systematically and consciously reasoned. The veterinarian acts in accordance with the principles of ‘evidence-based veterinary medicine’ and is able to justify judgments and to communicate clearly about these.

**3. Is able to carry out relevant veterinary activities**

The veterinarian is skilled in carrying out veterinary activities that are important in the context of diagnostics, prevention and therapy.

**4. Is aware of the social responsibility for the health and the welfare of animals and aspects of public health**

The veterinarian shows respect in dealing with animals, animal owners and other relevant persons. The veterinarian is prepared to take action and feels responsible for the health and welfare of animals (and animal owners) and for (the veterinary aspects of) public health and food safety.

The veterinarian is reliable and clear in agreements and refrains from making commitments that cannot be kept. The veterinarian is capable of examining their own veterinary actions and those of others critically and is aware of the responsibility for the execution of veterinary health care as an organisation, whereby the financial, logistic and other restrictive factors within veterinary health care are also considered.

**5. Maintains expertise and is able to deal flexibly with new developments**

The veterinarian is able to modify their knowledge, skills and professional conduct to an evolving health-care system, to scientific and social developments and to changing economic, legal and ethical boundaries. The veterinarian keeps up to date with these developments and is aware of the necessity of lifelong learning and assessment to be able to continue to function fully as a veterinarian.

**6. Bears in mind limitations in relation to animal species or activities for which insufficient competence may have been acquired**

The veterinarian is aware of the limitations of their profession and their own abilities. In occurring cases, they refrain from taking action and refer the patient to a colleague who has more expertise with the problem.

**7. Legally competent to practise veterinary medicine independently**

On the basis of the Law on Higher Education and Scientific Research, the Law on the Practice of Veterinary Medicine and the EU directive 78/1027/EEC, the veterinarian is legally aut-

horised to practice all aspects of veterinary medicine. The limits of competence are however defined by the programme followed during the period of study (track).

**8. Suitable to commence a further course of training such as a specialisation and/or a course leading to a doctorate**

The knowledge and skills acquired in the veterinary curriculum permit the veterinarian to commence a post-graduate training course.

## 5.3 Details of the profile of the veterinarian per track

### Companion Animals (CA)

Veterinarians who have taken the Companion Animals track are equipped with knowledge, skills and professional conduct which make them pre-eminently fit to function in the sector of veterinary medicine that is focused on dogs, cats, and small companion animals (in particular rabbits, rodents, ferrets and companion birds) that are kept individually or in groups as companion animals, for recreational purposes, for sports or for breeding.

### Horses (H)

Veterinarians who have taken the Horses track are equipped with knowledge, skills and professional conduct which make them pre-eminently fit to function in the sector of veterinary medicine that is focused on horses that are kept individually or in groups as companion animals, for recreational purposes, for sports or for breeding.

### Farm Animals (FA)

Veterinarians who have taken the Farm Animals track are equipped with knowledge, skills and professional conduct which make them pre-eminently fit to function in the sector of veterinary medicine for farm animals (ruminants, pigs and poultry) for both individual animals as well as herds. This veterinarian is the best person to talk to for the individual animal keeper, but also for the government and trade and industry in the animal production chain, in the field of animal health, animal welfare and public health.

### Veterinary Public Health (VPH)

Veterinarians who have taken the Veterinary Public Health track are equipped with knowledge, skills and professional conduct which make them pre-eminently fit to function in that sector of veterinary medicine that is concerned with safeguarding animal health and in those domains where the health of humans may be affected by the keeping and dealing with animals, by the animal production and the way in which these products are processed. This veterinarian is the best person to talk to for government and trade and industry, but also for the individual animal keeper.

### Management & Policy (M&P)

Veterinarians who have taken the Management & Policy track are equipped with knowledge, skills and professional conduct which make them pre-eminently suitable for management and administrative posts that are related to the various veterinary work domains, within the government, in business and in social organisations.

Through the combination of specific clinical, pathobiological and population-biological knowledge on the one hand, and management and policy-related knowledge on the other, the ‘management & policy’ veterinarian is well suited to serve as an intermediary between the commercial animal husbandry, trade and industry and the (national and international) government.

**Scientific Research (SR)**

Veterinarians who have taken the Scientific Research track are equipped with knowledge, skills and professional conduct which make them pre-eminently fit to work in (veterinary) biomedical research.

Through the combination of, on the one hand, specific non-species-bound pathobiological and population-biological insight and, on the other hand, knowledge and experience in the field of biomedical research, the 'scientific research' veterinarian is well suited to act as an intermediary between the biomedical research world and the world of practical and applied veterinary medicine.

**6 Technical aspects**

**6.1 The animal, the herd, the animal product, the enterprise, the owner or the environment**

Core	Track					
	CA	H	FA	VPH	M&P	SR

The veterinarian is able to:

work systematically	•	•	•	•	•	•
work in line with public and private law and in accordance with guidelines / protocols drawn up by the profession	•	•	•	•	•	•
cope with his responsibility with respect to animal health, animal welfare and public health	•	•	•	•	•	•
cope with his responsibility by taking measures that can reduce the risk of cross-contamination or the spreading of pathogens	•	•	•	•	•	•
recognize the risks of keeping animals in general and of animal diseases in particular and act accordingly	•	•	•	•	•	•
monitor or safeguard animal health, animal welfare and public health in a manner that is transparent and as required by protocol	•	•	•	•	•	
work with data bases that are specific to the sector	•	•	•	•	•	•
<i>make a strengths / weaknesses analysis of, form an opinion about, an animal-keeping enterprise as a whole and of/about the various management processes with respect to animal health, animal welfare and public health</i>		•	•	•	•	
<i>extrapolate information about the health status and production level of animals to the farm level as well as to larger populations</i>				•		
<i>control and manage the risks of pathogens, residues and toxins being transferred in food of animal origin</i>				•	•	•
<i>question, describe and analyse the farm profile<sup>1)</sup> of farms in the animal production chain</i>				•	•	

<sup>1</sup> Those features of a farm that distinguish the enterprise from other enterprises, such as size, intended use of the animals, production level, status with regard to certain pathogens or contact structure

**The veterinarian has knowledge and insight in relation to:**

Core	Track					
	CA	H	FA	VPH	M&P	SR

the main features of the historic developments in veterinary medicine	•	•	•	•	•	•
the fundamental biological principles and mechanisms that lie at the basis of health and disease, from the molecular and cellular level, to the level of organs, the whole animal and the population	•	•	•	•	•	•
the life cycle of animals and the requirements that have to be set for the animals' environment	•	•	•	•	•	•
interactions between environment, animal health, animal welfare and public health	•	•	•	•	•	•
the scientific basis of preventive and therapeutic interventions	•	•	•	•	•	•
epidemiological methods of tracing health problems	•		•	•		•
the animal production chains	•		•	•		
<i>hereditary disorders and the distribution thereof in closed populations</i>		•				
<i>quality and risk management on livestock farms</i>			•	•		
<i>the welfare of animals during the production process, transport and slaughter process</i>		•	•	•		
<i>population dynamics of infections and intoxications, also in relation to bioterrorism</i>				•		
<i>the principles, the concepts and the methods of good production practices and quality management from the harvest (good agricultural practices) through to and including retail</i>				•		
<i>the promotion and application of food hygiene and the promotion of food safety (good hygiene practices)</i>				•		
<i>surveillance and monitoring systems in use within the safeguarding of food safety</i>			•	•		
<i>audit methodologies and evaluation of the regulations of systems for the management of food safety</i>			•	•		
<i>'emergency preparedness' in relation to animal disease outbreaks and public health</i>			•	•	•	

**6.2 Description of the question**

**The veterinarian is able to:**

Core	Track					
	CA	H	FA	VPH	M&P	SR

form a clear picture of the question and to describe it unambiguously	•	•	•	•	•	•
describe data relating to the question, such as a description of an animal, a herd and a farm profile	•	•	•	•		
determine whether special precautions need to be taken when approaching or handling animals and/or animal products	•	•	•	•		•
form a general impression of an individual animal, a group of animals, animal products, and the surroundings in which they are held and/or processed	•	•	•	•		•
on the basis of the data provided, identify (groups of) animals and/or factors to which special attention should be paid during the investigation/examination	•	•	•	•		•
determine whether the answer to the question, or the impression gained of animal(s) or animal product(s) has an influence on other parts of the chain, other animals, animal products and/or public health	•		•	•		
prioritise and interpret the question and act accordingly depending on the urgency and in life-threatening situations immediately give first aid	•	•	•	•		

**6.3 Anamnesis**

**The veterinarian is able to:**

take a full anamnesis in relation to the current question, the history, any possibly related questions, the surroundings, the questions relating to other animals or humans in the surroundings and/or to links in the production chain	•	•	•	•		
estimate the relevance of the findings to the question, and classify and use them as the basis for further investigation/examination	•	•	•	•		
record the data from the anamnesis in a concise clear manner	•	•	•	•		

### 6.4 Initial examination

The veterinarian is able to:

Core	Track					
	CA	H	FA	VPH	M&P	SR

approach individual animals or a group of animals, immobilise them or have them immobilised in such a way that the carrying out of a general examination is possible in a responsible manner	•	•	•	•	•	
make a representative choice of the animals, animal / enterprise data and animal products to be examined	•	•	•	•	•	•
carry out a general examination <sup>[2]</sup> on the animal, the animals, and/or carry out investigations <sup>[3]</sup> into business processes and into the quality and safety of foodstuffs of animal origin, in particular on the slaughter line	•	•	•	•	•	
recognise deviations from the normal picture and the natural variations of this in animals and animal products	•	•	•	•	•	
give an answer to the question of whether the surroundings/enterprise in which the animal, the herd, the animal products are kept or processed could be of influence on the information obtained from the general examination	•	•	•	•	•	
state the findings and record them clearly	•	•	•	•	•	
make a choice of the relevant organ systems for further physical examination, and/or make a choice of foodstuffs of animal origin for further investigation	•	•	•	•	•	
carry out a physical examination of the various organ systems in the animal species (i.e. where this is relevant to the various animal species) <sup>[4]</sup> , taking the limits of one's own knowledge and skills into account	•	•	•	•	•	
carry out an investigation of foodstuffs of animal origin and the surroundings and conduct a risk analysis, in accordance with a validated procedure <sup>[5]</sup>	•			•		

### 6.5 Evaluation of findings

The veterinarian is able to:

Core	Track					
	CA	H	FA	VPH	M&P	SR

interpret, evaluate, record and express (problem definition) the information from the question and preceding examination in correlation with each other	•	•	•	•	•	
set priorities in the response, if several problems have been defined (triage)	•	•	•	•	•	
formulate hypotheses about cause and result, resulting in a (differential) diagnosis	•	•	•	•	•	
take action on / notify welfare abuses	•	•	•	•	•	
inform the responsible authorities on suspicion of notifiable diseases	•	•	•	•	•	
consider whether further investigation is merited given the nature of the question, the animal's suffering, the danger to other animals and/or humans and the burden on the environment	•	•	•	•	•	
estimate the urgency of any necessary actions	•	•	•	•	•	
consider the question in a broader perspective and where relevant in the context of the entire chain	•	•	•	•	•	
translate the risk analysis in terms of a risk estimate	•	•	•	•	•	
estimate the need for additional examination or intervention	•	•	•	•	•	
evaluate the relevance of additional examination and/or intervention for the subsequent decision-making process taking account of: - the chance of success - the risks for public health - the safety of foodstuffs of animal origin - the degree to which the animal's welfare is affected - the wishes of the person requesting the service - the costs and benefits to be expected	•	•	•	•	•	
decide to handle the problems themselves, or to call in the assistance of others with additional expertise, hereby taking account of the possibilities at the location and the limits of one's own knowledge and skills	•	•	•	•	•	
determine an inspection decision on the basis of recognised abnormalities in (unprocessed) animal products, or the lack thereof	•			•		
estimate whether and how an animal may and can be transported to another location	•			•		
prepare an animal for transportation	•	•	•	•	•	
if necessary kill an animal for the right reasons and in the right manner, thereby, if applicable, taking account of possible use for consumption	•	•	•	•	•	
certify death	•					

<sup>2</sup> The measurement of respiration rate and pulse, the measurement of body temperature and the evaluation of the skin, mucous membranes and the lymph nodes, where this is relevant for the different species of animals (see Appendix 1: Skills List)

<sup>3</sup> Ante- and post-mortem examination, as described in the law

<sup>4</sup> See also the explanation to Appendix 1: Skills List

<sup>5</sup> e.g. according to HACCP (Hazard Analysis and Critical Control Points) rules



### 6.6 Additional examination

Core	Track					
	CA	H	FA	VPH	M&P	SR

The veterinarian is able to:

collect additional information about animal(s), animal products, business and/or surroundings	•	•	•	•	•		
collect material in a safe and sound manner for additional examination taking into consideration the conditions under which this should be transported	•	•	•	•	•		
execute or respectively request the additional examination <sup>6]</sup>	•	•	•	•	•		
interpret the results of the additional examination or other information supplied	•	•	•	•	•		
discuss the findings of the additional examination with the interested parties	•	•	•	•	•		
estimate, classify and use the results of the additional examination according to their relevance to the question, and record the results of the additional examination in a clear, concise manner	•	•	•	•	•		
<i>and is legally qualified to take x-rays</i>		•	•				

### 6.7 Evaluation of findings after additional examination

The veterinarian is able to:

interpret the information from the question and the foregoing examination in correlation with each other and to establish the (most likely) diagnosis	•	•	•	•	•		
relate the results from the additional examination to other animals, the surroundings or parts of the production chain	•	•	•	•	•		
translate the risk analysis in terms of a risk estimate again	•	•	•	•	•		
once again estimate the urgency of necessary actions	•	•	•	•	•		
analyse the question again if at this stage no diagnosis can be established	•	•	•	•	•		
come to a reasoned diagnosis which can serve as the starting point for giving advice, treatment and guidance	•	•	•	•	•		
weigh up whether intervention is worthwhile for the animal, the herd, the animal product, the business, the owner or the surroundings	•	•	•	•	•		

### 6.8 Prevention and/or therapy

Core	Track					
	CA	H	FA	VPH	M&P	SR

The veterinarian is able to:

establish the goal of the prevention and/or therapy plan	•	•	•	•	•		
choose the optimum preventive and/or therapeutic intervention to achieve this goal from the various possibilities, taking into account the advantages and disadvantages for the animal, the herd, the animal products, the enterprise, the owner and the surroundings, and which fits within the frameworks of the relevant legislation and regulations	•	•	•	•	•		
carry out or have carried out the chosen preventive or therapeutic intervention in accordance with the applicable standards of the profession	•	•	•	•	•		
provide insights in a founded manner into the chances of achieving a result with the intervention	•	•	•	•	•		
indicate in a founded manner when, why, on what basis and how the prevention or therapy plan will be modified	•	•	•	•	•		
communicate the instructions relating to the proposed interventions, the possible risks and the subsequent stages in a correct manner with the owner	•	•	•	•	•		
limite as far as possible anxiety and/or unease in the animal and the human	•	•	•	•	•		
<i>use diagnostic epidemiology in the monitoring of problems related to foodstuffs of animal origin such as antibiotic resistance and residue issues</i>					•		
<i>advise enterprise about the application of food hygiene related to foodstuffs of animal origin</i>					•		

### 6.9 Consultation, referral, and transfer

The veterinarian is able to:

consult the correct person or organisation	•	•	•	•	•		
obtain information from others, and/or to provide information to others for the benefit of transferring or referring a case	•	•	•	•	•		

### 6.10 Final evaluation

The veterinarian is able to:

determine to what extent the question has been answered	•	•	•	•	•		
draw conclusions as a result of the evaluation: if necessary to reconsider the diagnosis, or to re-analyse the problem and as necessary to modify the prevention or therapy plan	•	•	•	•	•		
record the evaluation in writing and set up a plan for follow-up	•	•	•	•	•		

<sup>6</sup> See Appendix 1: Skills List

### 6.11 Operational management

Core	Track					
	CA	H	FA	VPH	M&P	SR

**The veterinarian demonstrates:**

awareness of working in, or being (partly) responsible for a company or other organisation	•	•	•	•	•	•	•
awareness of the need for adequate management in every form of professional cooperation	•	•	•	•	•	•	•

**The veterinarian is able to:**

jointly formulate objectives for an organisation	•						•
make a contribution to the development of a long-term policy	•						•
safeguard the quality of the working methods of an organisation	•						•
evaluate the main features of the annual accounts of a company (or organisation)	•						•
manage a veterinary pharmacy independently including the correct use of veterinary drugs	•	•	•	•			

**The veterinarian has knowledge and insight in relation to:**

the various organisational forms of a company	•						•
the role and responsibilities of the veterinarian as employee or employer	•						•
the basic principles of (business) management and marketing	•						•
<i>the basic principles of starting a practice, taking over a practice</i>		•	•	•			•

## 7 Scientific aspects

### 7.1 Significance of scientific thinking for the actions of the veterinarian

Core	Track					
	CA	H	FA	VPH	M&P	SR

**The veterinarian demonstrates:**

a critical and analytical attitude to the scientific knowledge on which veterinary medicine is based	•	•	•	•	•	•	•
an ability to estimate the level of one's own knowledge and skills on a solid scientific basis	•	•	•	•	•	•	•

**The veterinarian is able to:**

track down, evaluate and pass on information that is professionally important in the literature or other sources. This includes: - actively tracing relevant publications - making a selection from the relevant literature and keeping up to date with this literature - reading scientific literature critically and estimating its value - translating the results of scientific research into their application in the practice of veterinary medicine - citing professional literature - translating the results of scientific research in terms of various target groups (e.g. scientific forums, clients, the lay public)	•	•	•	•	•	•	•
approach a (veterinary) problem systematically in accordance with the accepted principles of natural sciences (Evidence-Based Veterinary Medicine <sup>(19)</sup> ) and can thereby: - translate the need for information concerned with a problem into a set of (clinical) questions that need to be answered - find the most suitable external 'evidence' - critically evaluate the evidence found for validity and significance - assess how to apply the evidence found to the problem in question - apply theories about hypothesis forming, problem solving and decision making in this process	•	•	•	•	•	•	•
identify (important) veterinary problems in the professional domain, suitable for setting up scientific research and translate these in terms of a simple research question	•						•

## 7.2 Basic principles of scientific research

The veterinarian is able to:

Core	Track					
	CA	H	FA	VPH	M&P	SR

under supervision set up a study of a limited size, carry out the research and generate, interpret and/or evaluate the results and report on them (in writing and orally)	•						
critically analyse and form a reasoned opinion of scientific (biomedical) research that is published or otherwise presented							•
identify, interpret, and summarise relevant literature and other relevant data, including databases, on a topic in a particular (biomedical) field and extrapolate this to a given practical research situation in a short period of time							•
draw up, to a great extent independently, a scientific (biomedical) hypothesis							•
convert, to a great extent independently, a scientific (biomedical) hypothesis into a research plan with accompanying protocols that can be carried out practically, with the application of the principles of research methodologies, statistics and epidemiology							•
make a considered choice, including ethical aspects, in relation to the use of laboratory animals or alternatives to laboratory animals							•
to a great extent independently carry out a research study in accordance with the plan and become skilled in the appropriate techniques							•
conduct animal experiments, in accordance with the stipulations set out in Art. 9 of the Experiments on Animals Act							•
work safely, reliably, carefully and according to protocol, in relation to laboratory and field work etc.							•
arrive at a sound analysis of the results and thereby engage the help of an (external) expert at the right moment							•
independently write publications for the scientific literature							•
present result of research to scientific forums							•

The veterinarian has knowledge and insight in relation to:

Core	Track					
	CA	H	FA	VPH	M&P	SR

the general principles of hypothesis formation, research methodologies <sup>1</sup> and thoughts about forms of scientific research that are relevant to veterinary medicine	•						
the principles of scientific methodology, biostatistics and epidemiology	•						
the process that leads to the publication of scientific data	•						
scientific theories taking into account the historic perspective and the way in which knowledge arises and how this knowledge is supported							•
fundamental aspects of welfare and behaviour in laboratory animals and the consequences of this for the setup of the study							•
methodologies for justified removal of bodily materials from laboratory animals for the benefit of scientific research							•
modern techniques that are used when carrying out elementary and applied molecular biological, cellular, histological, pathological, biochemical, infection biological, immunological and genetic research and the accompanying protocols							•
the various systems that ensure the quality of the scientific research							•
the fundamental working principles, the application possibilities and restrictions of imaging techniques that are used for research purposes							•
the application possibilities and restrictions of epidemiological research							•
the submission and presentation of project and subsidy requests							•

<sup>1</sup> including those related to data collection

## 8 Personal aspects

### 8.1 Aspects that apply generally

Core	Track					
	CA	H	FA	VPH	M&P	SR

**The veterinarian demonstrates:**

reliability, by keeping to agreements, working accurately and punctually, dealing with information obtained in a confidential manner and refraining from commitments that cannot be kept	•	•	•	•	•	•	•
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**The veterinarian is able to:**

communicate clearly verbally and non-verbally and is able to use different forms and methods of communication	•	•	•	•	•	•	•
point out feelings of dissatisfaction present in others and/or himself with respect to his professional relationship, and to make them discussable and to react adequately, taking into account the boundaries of his own knowledge and skills and decency	•	•	•	•	•	•	•

### 8.2 The relationship of the veterinarian with humans and animals

**The veterinarian demonstrates:**

a respectful attitude to humans and animals, taking account of the emotions, norms and values of others and uses generally acceptable manners	•	•	•	•	•	•	•
professional involvement in the animal, the (care) question of the client and understanding for the situation of the animal and the client in the context of society	•	•	•	•	•	•	•
an understanding of the need to be able to cope with his own emotions, norms and values in relation to questions about life, health, illness and death, in particular with veterinary ethical questions about the animals' value of their own <sup>1)</sup> and the balance between the wishes of the owner and personal ethical standpoints	•	•	•	•	•	•	•
a respectful attitude to laboratory animals, taking account of the animals' value of their own	•						•
a respectful attitude to people who are involved in or who feel involved in animal experiments, taking account of emotions of other people, by respecting their views and using generally acceptable manners	•						•

<sup>1)</sup> Code of Good Veterinary Practice

Core	Track					
	CA	H	FA	VPH	M&P	SR

**The veterinarian is able to:**

<i>deal professionally with the animal, the owner and the user, and with the specific requirements that are made of the animal and user in the context of use (sport, hobby, recreation), and thereby take account of the (sometimes conflicting) interests of animal, owner and user</i>		•	•				
<i>carry out the prescribed monitoring tasks on a livestock farm</i>				•	•		
<i>deal with the ethical problems in relation to the area of tension between the economy of the livestock farm (the enterprise), animal health, animal welfare and public health and to make these discussable</i>		•	•	•	•	•	

**8.3 Functioning in respect of veterinary activities**

**The veterinarian demonstrates:**

openness towards new developments	•	•	•	•	•	•	•
willingness to keep his own expertise up-to-date or to expand it	•	•	•	•	•	•	•
willingness to actively seek possibilities for improvement	•	•	•	•	•	•	•
willingness to set himself goals	•	•	•	•	•	•	•
willingness to use problems, dilemmas and setbacks constructively for further professional development	•	•	•	•	•	•	•
awareness of the responsibilities of the veterinarian	•	•	•	•	•	•	•
willingness to promote the health and welfare of the animal and to promote the quality and safety of foodstuffs of animal origin taking account of the animal's value of it's own	•	•	•	•	•	•	•
willingness to monitor and promote public health and (veterinary) environmental health and consider thereby the interests of the owner of the animal and/or the owner of the animal products and the place and the function of veterinary medicine and its practitioners in society	•	•	•	•	•	•	•

**The veterinarian is able to:**

cope with acute, or rapidly changing situations	•	•	•	•	•	•	•
cope with his own emotions, norms and values in relation to questions about life, death, disease and health, and to deal with veterinary ethical questions and also those relating to the balance between the wishes of the owner and the animal's value of it's own	•	•	•	•	•	•	•
act taking veterinary professional integrity into consideration	•	•	•	•	•	•	•

**8.4 Functioning in respect of professional working relationships**

Core	Track					
	CA	H	FA	VPH	M&P	SR

**The veterinarian is able to:**

function cooperatively, as evidenced by: - working together constructively in a team with other people - acting in a helpful and brotherly manner - giving and asking for feedback - contributing in an adequate manner to the working relationship - taking on various roles within the team, taking into account the limits of his own knowledge and skills	•	•	•	•	•	•	•
work systematically, as evidenced by: - the organisation of the work activities - the structured, quality-conscious, purposeful and efficient way of working - the completion of work within the set time	•	•	•	•	•	•	•
deal with positive and negative feedback and to ask in a timely manner for such feedback and to be able to incorporate his own contribution and those of others in his subsequent actions	•	•	•	•	•	•	•
delimit, on the basis of one's own knowledge, skills and responsibilities, tasks with respect to other (veterinary) disciplines and para-veterinary professions	•	•	•	•	•	•	•
deal with conflicts (conflict management)	•	•	•	•	•	•	•
<i>function in the (inter)national network of health care for the animal species involved, in the context of first, second and third-line practices/clinics, ratifications and specialisations</i>		•	•	•	•		
<i>translate observations relating to public health from the production chain of foodstuffs of animal origin, companion animals and the environment and express them to those involved</i>		•	•	•	•		
<i>function cooperatively and constructively in a multidisciplinary context and in that position fulfil a bridging function between the (inter)national policy-forming bodies and those people executing policy in the animal-keeping enterprises, trade and industry and the professional domain of veterinary medicine</i>						•	
<i>function cooperatively and constructively in a multidisciplinary research team and in that position fulfil a bridging function between the professional domain of veterinary medicine and biomedical research</i>							•

### 8.5 Functioning in respect of personal characteristics

The veterinarian is able to:

Core	Track					
	CA	H	FA	VPH	M&P	SR

act self-confidently, as evidenced by: - the expression and coordination of thoughts, feelings and behaviour - the ability to deal with stress, uncertainty, feelings of powerlessness and with the area of tension between ideals and the necessarily concrete professional actions - the awareness of own capacities and limitations; accepting the limits of own expertise and of existing prejudices; recognition of own limitations and those of the veterinary profession as a whole - logical, firm and honest actions	•	•	•	•	•	•	•
deal with complications as a consequence of personal and veterinary actions, with appropriate critical reflection	•	•	•	•	•	•	•
examine from a distance own functioning and behaviour, as well as that of the profession as a whole	•	•	•	•	•	•	•
handle criticism	•	•	•	•	•	•	•
handle once own responsibility; dare to take difficult decisions, including deciding not to treat, taking account of the personal circumstances, wishes and own responsibility of the person asking for the service	•	•	•	•	•	•	•

### 8.6 The mutual influences of work and private life

The veterinarian demonstrates:

appreciation, recognition and estimation of the importance of any tensions between work and private life	•	•	•	•	•	•	•
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The veterinarian is able to:

take appropriate measures to reduce personal tensions, including professional help if necessary	•	•	•	•	•	•	•
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## 9 Social aspects

### 9.1 The social responsibility of the veterinarian in relation to animal health, animal welfare, public health and food safety

Core	Track					
	CA	H	FA	VPH	M&P	SR

The veterinarian demonstrates:

an understanding of divergent moral outlooks and respect for other opinions and views and the ability to cope with them	•	•	•	•	•	•	•
the ability to regard himself and his work in the context of general principles of ethics: portrayal of mankind, world-view and philosophy of life, and can translate this in actions	•	•	•	•	•	•	•
insight into the social context and function of animals and their use, in relation to the owner/user, public health, the environment and his colleagues and the veterinarian's own position and role in that	•	•	•	•	•	•	•
an understanding of the demand from society for guarantees with respect to animal welfare	•	•	•	•	•	•	•
an understanding of ethical aspects of veterinary activities	•	•	•	•	•	•	•
the awareness that veterinary practice takes place within a strongly market-guided and large-scale sector and the consequences that arise from this for the practice of veterinary medicine	•			•	•	•	
an understanding of the significance of veterinary medicine in relation to the tracing and recognition of zoonoses	•	•	•	•	•		
a critical and analytical attitude with regard to the use of laboratory animals for the benefit of scientific research and an awareness of the possible alternatives to animal experiments	•						•
the awareness of the necessity of considering whether the results of a veterinary scientific study, which is to be set up, can be applied in an ethically and a socially responsible manner	•						•
the awareness of the social significance of regular and non-regular interventions	•	•	•	•	•	•	•
<i>the awareness that economic interests can exceed the capacity of the animal to adapt and thereby can be in conflict with the welfare of the animal</i>		•	•	•			

Core	Track					
	CA	H	FA	VPH	M&P	SR

**The veterinarian is able to:**

weigh the interests of the animal and the general interest against each other and take a position on this and take action in accordance with that position	•	•	•	•	•	•	•
recognise, identify and weigh up ethical aspects and moral questions that are relevant to veterinary decisions and which arise during veterinary activities and subsequently act accordingly	•	•	•	•	•	•	•
clarify his own moral standpoints with arguments and justify these to owners, colleagues and other people	•	•	•	•	•	•	•
when there are outbreaks of infectious or notifiable diseases explain the measures taken by the government and make professional/expert comments on them	•	•	•	•	•	•	
inform/advise organisations in society about keeping animals in a responsible manner	•	•	•	•	•	•	
<i>have an active professional attitude with regard to the combatting of infectious and/or notifiable animal diseases and think about plans for combatting and monitoring with respect to these diseases</i>				•	•	•	
<i>in a responsible manner, inform the public about and explain to the public the use of laboratory animals and the possibilities and impossibilities of alternatives to the use of laboratory animals</i>							•
<i>inform the public and explain to the public the welfare or the lack of it in laboratory animals</i>							•
<i>explain research results in relation to socially relevant questions for the benefit of society</i>						•	•

**The veterinarian has knowledge and insight in relation to:**

general philosophical questions in veterinary medicine: the keeping of animals, health and disease, welfare and death, healing and killing	•	•	•	•	•	•	•
the central role of the veterinarian in the animal healthcare system and the 'watchdog' function which that entails	•			•	•	•	
the prohibition on the use of illegal substances in sport and production	•	•	•	•	•		
the factors that are definitive for developments in animal healthcare, such as size, costs and financing (including insurances)	•	•	•	•	•	•	
the link between environment and food production (including waste management)	•			•	•		
the precautionary principle and the interests of consumers and animal owners	•				•		
information and communications technology in relation to public health from the veterinary perspective ('early warning', 'rapid alert systems')	•			•	•		
<i>the unique position of the horse as a companion animal, on the one hand, and on the other, being intended for human consumption and the manner in which this is registered</i>			•		•		

**9.2 (Inter)national legal and judicial aspects of keeping animals and of practicing veterinary medicine**

Core	Track					
	CA	H	FA	VPH	M&P	SR

**The veterinarian demonstrates:**

awareness of the mutual links between Dutch, European and global legislation and regulations in relation to animals and animal products	•			•	•	•	
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**The veterinarian is able to:**

be adequately informed and to deal with public and private law regulations in respect of the keeping of animals and the (public) health systems relevant to the veterinarian	•	•	•	•	•	•	•
deal with any conflicts between his professional integrity and the legislation and regulations	•	•	•	•	•	•	•

**The veterinarian has knowledge and insight in relation to:**

the foundations and principles of the European and Dutch legislation and regulations in respect of animals[1] and animal products[2]	•	•	•	•	•	•	•
the legislation and regulations relating to the veterinarian – animal – owner relationship	•	•	•	•	•	•	•
the legally established competences of paraveterinary staff	•	•	•	•	•	•	•
the other legal and judicial aspects that are inherent to the practice of veterinary medicine, and guidelines connected to responsible care for and protection of the animal, with the (international) licence to practice and with liability	•	•	•	•	•	•	•
<i>the legal aspects of conducting scientific research</i>							•

<sup>1</sup> this includes legislation and regulations about keeping and caring for animals, the treatment, buying and selling, import and export of animals, about the financing of the care for animals and about conducting scientific research with animals

<sup>2</sup> this includes legislation and regulations about the slaughter, inspection, processing, importing and exporting of animal products

### 9.3 Organisations concerned with the keeping of animals

Core	Track					
	CA	H	FA	VPH	M&P	SR

**The veterinarian is able to:**

<i>cooperatively and constructively collaborate in the management of these organisations and manage/control (parts of) organisation(s)</i>						•	
<i>on the basis of his own specific expertise, fulfill a bridging function between the various actors in the domain of primary animal keeping, trade and industry and government, and in this respect, develop and maintain a network of functional relationships both inside and outside his own organisation</i>						•	
<i>analyse, interpret and explain the judicial, economic and social context of policy questions</i>						•	
<i>follow scientific developments (the basic ideas) and translate these into policy or changes to policy</i>						•	
<i>make a contribution to the implementation of policy, including strategy, the creation of support, policy evaluation and, where necessary, modification of policy</i>						•	

**The veterinarian has knowledge and insight in relation to:**

<i>the place, function, social embedding, interests of, and links between organisations involved in keeping animals, in the production of foodstuffs of animal origin and in public health</i>	•	•	•	•	•	•	•
<i>the manner in which the sector is organised nationally and internationally</i>	•	•	•	•	•	•	•
<i>the specific interests, function and social embedding of organisations which are occupied with conducting veterinary/biomedical scientific research and of organisations and bodies that grant subsidies</i>							•
<i>the general principles of strategic management, operational management (financial and personnel) and personal management</i>						•	
<i>the managerial principles, as far as structure and make up, of development (innovation/reorganisation) and financing of organisations (directly or indirectly) involved in keeping animals or in the production of foodstuffs of animal origins (related to: animal welfare, animal health, food safety, veterinary public health)</i>						•	

## 10 Questions / Problems that the veterinarian may have to face

### 10.1 Explanation

This chapter contains Questions / Problems that the veterinarian may have to face. The Questions / Problems list can be regarded as a more detailed specification of Chapters 6 to 9, and in particular of Chapter 6, 'Technical aspects'. In the Questions / Problems List, no distinction is made between the core curriculum and the tracks. At the time of graduation, a veterinarian should be able, in principle, to deal with all the questions and/or problems listed here. In other words, they should be able to draw up a plan of action in response. That does not, however, mean that the veterinarian will have to be able to (completely) solve all the questions / problems listed. A more specific problem relating to an animal species or a sector from a different track is thus required to be less exhaustively solved than specific questions / problems from one's own track. Sometimes the best approach, the best solution on hand, is as soon as possible to call in assistance or to refer the question or problem to a colleague with that specific expertise.

In the Questions / Problems List the questions / problems marked with grey are those that can affect a herd as well as an individual animal.



### 10.2 Questions / Problems relating to:

Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
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#### General

the status of animal health	•	•	•	•	•	•	•
the care of the animal(s)	•	•	•	•	•	•	•
the housing of animals incl. climate	•	•	•	•	•	•	•
the hygiene (measures) at farm level	•	•	•	•	•	•	•
the risk assessment for the immediate vicinity	•	•	•	•	•	•	•
the status of the animal welfare	•	•	•	•	•	•	•
a request for advice in relation to behaviour	•	•	•	•	•	•	•
behaviour change / aggressive behaviour / anxious behaviour	•	•	•	•	•	•	•
indications for / suspicion of maltreatment / neglect	•	•	•	•	•	•	•
the status of the public health	•	•	•	•	•	•	•
food safety	•	•	•	•	•	•	•
weight loss	•	•	•	•	•	•	•
obesity / overweight	•	•	•	•	•	•	•
guidance on breeding	•	•	•	•	•	•	•
preventive measures / vaccinations / deworming	•	•	•	•	•	•	•
insufficient growth / production / performance	•	•	•	•	•	•	•
reduced milk production	•	•	•	•	•	•	•
change in drinking behaviour	•	•	•	•	•	•	•
change in eating behaviour	•	•	•	•	•	•	•
sluggishness / inactivity / general malaise	•	•	•	•	•	•	•
reduced / poor stamina	•	•	•	•	•	•	•
“fever”	•	•	•	•	•	•	•
pain in general, not specified	•	•	•	•	•	•	•
blood loss	•	•	•	•	•	•	•
trembling	•	•	•	•	•	•	•
request for euthanasia	•	•	•	•	•	•	•
(acute) death	•	•	•	•	•	•	•
anxiety for serious disease / infection	•	•	•	•	•	•	•
suspected poisoning	•	•	•	•	•	•	•
preventive examination (purchase / sale / insurance)	•	•	•	•	•	•	•
hereditary test	•	•	•	•	•	•	•
a suspicion of a hereditary / congenital defect	•	•	•	•	•	•	•
an aesthetic problem with the appearance of the animal	•	•	•	•	•	•	•
a request for utility operations	•	•	•	•	•	•	•
laws and regulations related to veterinary medicine	•	•	•	•	•	•	•

Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
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#### General (cont.)

the management, including in relation to animal health, animal welfare and public health	•	•	•	•	•	•	•
the analysis of indicators, including in relation to animal health, animal welfare and public health	•	•	•	•	•	•	•
management systems (software), including in relation to animal health, animal welfare and public health	•	•	•	•	•	•	•
the farm economics bookkeeping, including in relation to animal health, animal welfare and public health	•	•	•	•	•	•	•
the export and import of animals	•	•	•	•	•	•	•
quality assurance systems, including in relation to animal health, animal welfare and public health	•	•	•	•	•	•	•

#### Respiration

nasal discharge	•	•	•	•	•	•	•
nasal bleeding	•	•	•	•	•	•	•
abnormalities of the external nose	•	•	•	•	•	•	•
nasal congestion	•	•	•	•	•	•	•
coughing	•	•	•	•	•	•	•
coughing up mucous or blood	•	•	•	•	•	•	•
sneezing	•	•	•	•	•	•	•
wheezy breathing and other respiratory noises	•	•	•	•	•	•	•
shortness of breath / tightness in the chest / rapid breathing	•	•	•	•	•	•	•

#### Nutrition and digestion

nutrition of the young / growing animal	•	•	•	•	•	•	•
nutrition of the adult animal	•	•	•	•	•	•	•
nutrition of the pregnant animal	•	•	•	•	•	•	•
nutrition of the highly productive animal	•	•	•	•	•	•	•
nutrition of the older animal	•	•	•	•	•	•	•
(suspicion of) having eaten something wrong	•	•	•	•	•	•	•
lockjaw	•	•	•	•	•	•	•
open beak / mouth	•	•	•	•	•	•	•
abnormalities of the lip / tongue / mouth	•	•	•	•	•	•	•
excessive salivation	•	•	•	•	•	•	•
breath stinks / smells / foetor ex ore	•	•	•	•	•	•	•
injuries in mouth or throat region	•	•	•	•	•	•	•

Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
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**Nutrition and digestion (cont.)**

swelling on jaw, throat or neck, or other parts of head	•	•	•	•	•	•	•
trauma / inflammations to the teeth (lost / fractures / loose)	•	•	•	•	•	•	•
too many / too few / misshapen teeth			•	•	•	•	•
problems with swallowing	•	•	•	•	•	•	•
regurgitation / vomiting	•	•	•	•	•	•	•
hiccup			•	•	•		
abnormal shape of abdomen / bloating	•	•	•	•	•	•	•
expressions of abdominal pain / colic	•	•	•	•	•	•	•
swellings of or around the navel	•	•	•	•	•	•	•
swelling / trauma to or around the anus	•	•	•	•	•	•	•
straining	•	•	•	•	•	•	•
constipation / no stool	•	•	•	•	•	•	•
acute diarrhoea	•	•	•	•	•	•	•
chronic diarrhoea	•	•	•	•	•	•	•
abnormal stool (colour / smell / aspect / inclusions)	•	•	•	•	•	•	•
painful stool	•	•	•	•	•	•	•
incontinence for faeces			•	•	•		
itch of or around the anus			•	•	•	•	
blood loss from rectum / cloaca	•	•	•	•	•	•	•
flatulence			•	•	•	•	

**Reproduction and care of the young animal**

abnormality of the external genital organs ♀ and ♂	•	•	•	•	•	•	•
reduced fertility	•	•	•	•	•	•	•
suspicion of infertility ♀ and ♂	•	•	•	•	•	•	•
cycle irregularities	•	•	•	•	•	•	•
estrus synchronisation	•	•	•	•	•	•	•
contraceptives / wish for sterilisation	•	•	•	•	•	•	•
embryo transfer	•	•	•	•	•	•	•
pregnancy diagnosis	•	•	•	•	•	•	•
unwanted pregnancy	•	•	•	•	•	•	•
abortion / premature birth	•	•	•	•	•	•	•
veterinary support during extraction / birth	•	•	•	•	•	•	•
little / no life fetus to be felt (any more)			•	•	•	•	•
too long pregnancy / egg binding	•	•	•	•	•	•	•

Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
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**Reproduction and care of the young animal (cont.)**

retained placenta	•	•	•	•	•	•	•
peripartal haemorrhages	•	•	•	•	•	•	•
swelling out of the vagina (vagina / uterus / bladder prolapse)	•	•	•	•	•	•	•
(abnormal) vaginal discharge	•	•	•	•	•	•	•
death of the young animal around birth	•	•	•	•	•	•	•
weak neonate	•	•	•	•	•	•	•
an abnormal appearance of the young animal	•	•	•	•	•	•	•
determination of sex		•	•	•	•	•	•
an abnormal birth weight	•	•	•	•	•	•	•
unwillingness to eat / drink in the young animal	•	•	•	•	•	•	•
retardation of motoric development in the young animal	•	•	•	•	•	•	•
the poorly developing young animal	•	•	•	•	•	•	•
swelling of the scrotum	•	•	•	•	•	•	•
testicles that cannot be felt or that are too small	•	•	•	•	•	•	•
inability to expose the penis / penis remains exposed	•	•	•	•	•	•	•
does not want to service	•	•	•	•	•	•	•
trauma to the genital organs ♀ and ♂	•	•	•	•	•	•	•

**Urinary tract**

impeded / no urination	•	•	•	•	•	•	•
excessive / frequent urination		•	•	•	•	•	•
urine incontinence		•	•	•	•	•	•
abnormal urine	•	•	•	•	•	•	•
urethral discharge in male animal	•	•	•	•	•	•	•

**Skin**

changed aspect of skin and / or adnexures	•	•	•	•	•	•	•
colour changes in the mucous membranes / skin	•	•	•	•	•	•	•
locally swollen skin (bump)	•	•	•	•	•	•	•
itch	•	•	•	•	•	•	•
(acute) painfulness of the skin	•	•	•	•	•	•	•
insect bite	•	•	•	•	•	•	•
burns and frostbite	•	•	•	•	•	•	•
wound(s)	•	•	•	•	•	•	•
warts		•	•	•	•	•	•

	Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
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**Skin (cont.)**

reduced hair / feather growth / bald patches	•	•	•	•	•	•	•	•
hot spot / abrasion / hair pulling / feather plucking	•	•	•	•	•	•	•	•
nail / hoof / sole / claw abnormalities	•	•	•	•	•	•	•	•
abnormal number / form of toes					•	•		
trauma / deformities of the horns / beak		•	•					•
haemorrhages after de-horning		•						

**Mammae**

(subclinical or clinical) mastitis	•	•		•	•	•	•	
changes in or abnormality of size / contour / symmetry of mammae	•	•		•	•	•	•	
abnormal discharge from nipple		•		•	•	•	•	
eczema on the udder / mammary gland skin	•	•		•	•	•		
trauma to udder / mammary glands and/or trauma to teat / nipple	•	•		•	•	•		

**Senses, Nervous system and Locomotion**

head squint / including painful ear	•	•	•	•	•	•	•	•
squint face / reduced facial movement	•	•		•	•	•	•	
itch on / in ear	•	•		•	•	•	•	
discharge from ear	•	•		•	•	•	•	•
abnormality / trauma to auricle	•	•		•	•	•	•	
deafness				•	•	•		
irritated / itchy eye	•	•	•	•	•	•	•	•
red eye / inflamed eye / eye mucous membrane	•	•	•	•	•	•	•	•
watering eye / tear-stripe	•	•	•	•	•	•	•	•
change in the form and/or appearance of the eye, eyelids or surroundings / changes in pupil /corpus alienum in eye	•	•	•	•	•	•	•	•
abnormal eye movements	•	•	•	•	•	•	•	•
cross eyed					•	•		
cloudy eye	•	•	•	•	•	•	•	•
bulging eye / luxation of the eye				•	•	•	•	•
sunken / deep-set eyes	•	•		•	•	•	•	
injuries to / around the eye	•	•	•	•	•	•	•	•
poor vision / blind	•	•		•	•	•	•	•
compulsive- and craving phenomena	•	•	•	•	•	•	•	•
loss of consciousness / change in consciousness / fainting	•	•	•	•	•	•	•	•
convulsions / seizure / fit / stroke / involuntary movements	•	•	•	•	•	•	•	•

	Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
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**Senses, Nervous system and Locomotion (cont.)**

balance disturbances / insufficient coordination	•	•	•	•	•	•	•	•
loss / reduction in power				•	•	•	•	
paralysis	•	•	•	•	•	•	•	•
lying animal (not able to stand)	•	•	•	•	•	•	•	•
abnormal stance / position of body / limbs	•	•	•	•	•	•	•	•
painful / stiff neck				•	•	•	•	
painful / inflexible / bent / twisted back	•	•		•	•	•	•	•
abnormal shape / position of tail		•		•	•	•	•	
paralysis / reduced tonicity in tail	•	•		•	•	•		
trauma / inflammation of the tail	•	•		•	•	•	•	
request for tail amputation	•	•		•	•	•		
thick paws / legs	•	•	•	•	•	•	•	•
lameness	•	•	•	•	•	•	•	•
trauma to limbs / bone fractures	•	•	•	•	•	•	•	•
painful / stiff / swollen joints	•	•	•	•	•	•	•	•
abnormal shape of bones / joints	•	•	•	•	•	•	•	•
reduction in muscle volume	•	•		•	•	•	•	•
hard / painful muscles	•	•		•	•	•		
muscles cramps / tremors	•	•	•	•	•	•	•	•
prevention of claw / hoof problems	•	•		•				

**Interventions**

use of veterinary drugs	•	•	•	•	•	•	•	•
storage of veterinary drugs	•	•	•	•	•	•	•	•
request for information about treatment plan and prognosis	•	•	•	•	•	•	•	•
farm treatment plan	•	•	•	•	•	•	•	•
concern about side effects of drugs	•	•	•	•	•	•	•	•
complication of the intervention	•	•	•	•	•	•	•	•
non-cooperation with the medical treatment / non-compliance	•	•	•	•	•	•	•	•
misuse of drugs	•	•	•	•	•	•	•	•
medical errors / professional errors	•	•	•	•	•	•	•	•
cost-benefit calculation of treatments / advice	•	•	•	•	•	•	•	•
additional therapy (e.g. physiotherapy)				•	•	•	•	
rehabilitation of the animal / the animals				•	•	•	•	•

Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
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**Veterinary Public Health**

is this 'contagious' for humans / zoonoses	•	•	•	•	•	•	•
logistics and channeling of animals for slaughter	•	•	•	•		•	
milk quality / safety		•		•			
egg quality / safety			•				
cleaning and disinfection	•	•	•	•	•	•	•
possibility of slaughter / slaughter value / inspection decision	•	•	•	•		•	
waste products and manure	•	•	•	•	•	•	
effects of by-products and waste flows	•	•	•				
effects of keeping animals on environment and public health / cycles	•	•	•	•	•	•	•
growth enhancers	•	•	•	•		•	
product knowledge of foodstuffs of animal origin	•	•	•	•			
slaughter technology	•	•	•	•		•	
processing of foodstuffs of animal origin	•	•	•	•		•	
meat quality / safety	•	•	•	•		•	
water quality / safety, including in relation to animal health, animal welfare and public health	•	•	•	•		•	•

**Veterinarian-owner relationship and communication**

alternative / non-regular interventions	•	•	•	•	•	•	•
role of the animal for the health of the human (including rehabilitation)				•	•	•	•
dysfunctional relationship in care provision (including medical shopping)	•	•	•	•	•	•	•
abnormal behaviour of person asking for care	•	•	•	•	•	•	•
costs / invoice of the veterinary care	•	•	•	•	•	•	•
financial problems of the owner	•	•	•	•	•	•	•

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### Editors

Prof. P. van Beukelen  
Dr. W.G.G.M. van der Maazen  
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