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THE EUROPEAN COLLEGE OF VETERINARY CLINICAL PATHOLOGY INFORMATION BROCHURE

The European College of Veterinary Clinical Pathology was established in 2002 to advance veterinary clinical pathology and promote high standards within the speciality in Europe. The European College of Veterinary Clinical Pathology represents an organised effort to establish criteria for training and experience to qualify as a specialist in veterinary clinical pathology. The organisation encourages veterinarians entering veterinary clinical pathology to acquire training and competence based on approved standards. Those who meet the standards of training and competence established by the College will be awarded a suitable certificate. A list of diplomates is maintained for guidance of institutions and the public.

1 OBJECTIVES

- 1.1** To establish standards of training, experience, and examination for qualification as a specialist in veterinary clinical pathology in Europe.

- 1.2** To further the recognition of such qualified specialists by suitable certification and other means in Europe.

- 1.3** To develop and supervise continuing education programmes in veterinary clinical pathology in Europe.

- 1.4** To encourage and promote the establishment of standards for the performance of laboratory procedures in veterinary clinical pathology in Europe.

1.5 To further research and scientific progress in veterinary clinical pathology in Europe.

2. DEFINITION

Veterinary clinical pathology is a discipline-oriented specialisation, which focuses on the development and application of diagnostic laboratory procedures for monitoring animal health and the diagnosis, prognosis, treatment and the monitoring of animal disease. It is applied primarily to companion, agricultural, and laboratory animals, but also to aquatic and zoo animals and wildlife.

Veterinary Clinical Pathologists are employed to practice, research and / or teach this speciality in a wide variety of career pathways, including (i) veterinary schools, (ii) private, commercial, and government diagnostic laboratories, (iii) pharmaceutical discovery and safety evaluation (iv) and other research institutes and industry.

Veterinary clinical pathology is an essential discipline for the practice to highest standards of veterinary medicine and surgery in every European veterinary school and veterinary clinic, and in every animal diagnostic laboratory operating commercially and in industry.

There are three primary areas of veterinary clinical pathology, namely, a) clinical biochemistry including endocrinology and molecular diagnostics, b) haematology, and c) cytology. These are all based on a strong knowledge of general clinical pathology which consists of pathophysiology, including immunology, and on laboratory management, including the theory and application of laboratory methodologies and technologies.

Interpretation of veterinary clinical pathology data requires a significant knowledge, experience, and training in veterinary medicine and pathology that are not found to sufficient extent within the requirements for non-veterinary, training programs restricted to clinical pathology methodology and technology. However, effective interpretation of veterinary clinical pathology data does require a comprehensive knowledge of the theory, application and administration of the laboratory technologies and methodologies from which the data are generated. Knowledge, experience and training in the latter are not found to sufficient extent within the other European veterinary specialities.

3. MEMBERSHIP

A veterinarian who has satisfied the requirements as to character, training and experience and competence in veterinary clinical pathology, including satisfactory completion of the certifying examination, is eligible for membership. Election of such candidates is accomplished by majority vote of the Board.

Non-Practising Diplomat: A diplomate who has not practised the speciality for two continuous years or the equivalent of two years during a period of 5 years, or has not attended an annual general meeting of the ECVCP for three years without previous dispensation from the ESVCP will be designated as a non-practising diplomate in the register. In order to evaluate the requirements laid down in article 3.5 and 3.8 the diplomats are required to send in each 5 years a summary of their professional activities in which evidence of fulfilling these requirements and evidence of continuous education must be included. The format of this summary has to be approved of by the European Board of Veterinary Specialisation and will be evaluated by members of the Credential Committee. A member seeking to revert to full Diplomat status needs to satisfy the Board that they again meet the criteria for full Diplomat status, such as through practice of veterinary clinical pathology, and evidence of continuing educational activities. Any ECVCP diplomate who has retired from the practice or teaching of veterinary clinical pathology may be designated a Non-practising Diplomat by the Board, at the diplomate's request. Non-practising Diplomates will be requested to pay a reduced fee in order to maintain all the privileges of diplomates, except the right to vote or hold office.

Honorary Diplomat: A veterinarian who is not a Diplomat of the ECVCP but who has contributed in an extraordinary manner to the advancement of veterinary clinical pathology may be elected by majority vote as an Honorary Diplomat. Nomination for Honorary Diplomat Status shall be made through the sponsorship of two Diplomats. The sponsors shall furnish the Executive Secretary with such information concerning the nominee, as is required by the Board, e.g. curriculum vitae. Election of an Honorary Diplomat shall be accomplished by a two-thirds vote of the Board and by a two-thirds vote of the Business Meeting of the College. Honorary Diplomat status does not confer the right to act as a specialist in veterinary clinical pathology. Honorary Diplomates shall have all the privileges of membership except the right to vote or hold office and shall pay reduced dues.

4. THE EXAMINATION

4.1. Application for Examination

The examination of the European College of Veterinary Clinical Pathology will be held in September of each year.

Application forms, available from the Secretary, require the signature of a Diplomat of the College, who sponsors the candidate by certifying that an approved programme of training has been followed to permit sitting for the examination.

An application is valid for only one year except for repeat candidates (see "Results of the Examination")

The signing sponsor should be the person most responsible for the candidate's training. When this is not possible the applicant should provide an appropriate explanation to the Board.

Completed application forms accompanied by the examination fee of 500 EURO must be received by the Secretary postmarked not later than March 1st of the year of examination.

Eligibility to sit the examination is determined by the Board in early April; applicants are promptly notified as to acceptance. If the applicant's credentials are not accepted, or if candidates withdraw from the examination prior to June 1st, fees are refunded, except for a 10 percent processing charge. No refunds are made after this date, and no fees may be carried over to be applied toward an examination in a subsequent year.

An individual who has received an unfavourable ruling regarding qualifications to sit the examination may appeal against this decision. Such an appeal must be received in writing to the secretary within 30 days of the date of the letter informing the individual of the unfavourable decision.

4.2. General Requirements of Board Examination

The following prerequisites must be met to the satisfaction of the Board before any candidate is eligible to undertake any Board Examination in veterinary clinical pathology. An eligible candidate must:

- (a) have a satisfactory moral and ethical standing in relation to the practice of veterinary medicine;
- (b) be qualified to practice veterinary medicine in Europe, unless relieved from this requirement in exceptional cases by the Board;
- (c) normally resident in Europe or, at the discretion of the Board, significantly active in veterinary clinical pathology in Europe
- (d) complete a 1-year rotating internship, or 2 years in clinical practice, or an equivalent training acceptable to the Credentials Committee as a prerequisite to entering the clinical pathology training programme
- (e) complete at least 3 years of post-graduate training and experience in veterinary clinical pathology that is acceptable to the Board. Acceptable means a training programme of at least three years that is directed by a Diplomate of the ECVCP and is approved by the ECVCP Credentials Committee at an institute with a clinical pathology laboratory approved by the ECVCP Laboratory Standards Committee

Content of Training Program: The 3-year training programme shall consist of a minimum amount of training of similar periods of time in each of the following 4 areas:

(i) general clinical pathology i.e. pathophysiology, including immunology, and laboratory management, (ii) clinical biochemistry including endocrinology and molecular diagnostics, (iii) haematology, and (iv) cytology.

(f) if either the supervisor is not a Diplomate or the programme does not provide training in veterinary clinical pathology as one of its primary functions, then 4 years of training in veterinary clinical pathology are required. One of these 4 years must be spent in training under the supervision of a Diplomate of this College and in a programme that trains veterinary clinical pathologists as one of its primary functions. At least one month per year for each of the other 3 years must be spent attending courses or at another institution for training in veterinary clinical pathology;

(g) have been the first author of at least two original articles which demonstrates application of scientific methods on subjects that are relevant to veterinary clinical pathology. The article must have been published or accepted for publication in a peer-reviewed journal. The article may be a case report with literature review, an evaluation or validation of diagnostic methodology or technology in clinical pathology, a retrospective or prospective study of clinical pathology changes in a disease or toxic state, or a pathophysiological study of clinical pathology change.

(g) be active in veterinary clinical pathology for at least 60% of their normal working week.

5. VETERINARY CLINICAL PATHOLOGY TRAINING PROGRAMME FOR DIPLOMATE STATUS

5.1. Definition

A veterinary clinical pathology Training Programme allows graduate veterinarians to acquire in-depth knowledge of veterinary clinical pathology and its supporting disciplines under the supervision and guidance of a Diplomate of the European College of Veterinary Clinical Pathology, or in selected approved Alternative Training Programmes.

5. 2. Objectives of a Veterinary Clinical Pathology Training Programme

(a) To promote aptitude and proficiency in veterinary clinical pathology.

(b) To instruct graduate veterinarians in the science and practice of veterinary clinical pathology and its supporting disciplines.

(c) To provide graduate veterinarians with the opportunity to pursue a career in teaching, research, diagnostic, industrial or regulatory / governmental practice of veterinary clinical pathology.

(d) To advance veterinary clinical pathology through promotion of research and publications.

5.3 General Programme Description

To become eligible for the qualifying examination, training can be obtained either through Specialised Training Programmes or Alternative Programmes.

5.4. Specialised Training Programme

This training programme is supervised by a Diplomate of the European College of Veterinary Clinical Pathology and is designed to allow veterinary graduates, employed within a teaching institution, to receive the training needed to become eligible to take the Diplomate examination.

(a) **Prerequisite:** Prospective trainees should be qualified to practice veterinary medicine in Europe, or present evidence, which in the judgement of the Board of the European College of Veterinary Clinical Pathology, is an equivalent qualification, and should have completed 1-year rotating internship, or 2 years in clinical practice, or equivalent training acceptable to the Credentials Committee.

(b) **Diplomate supervision:** A Diplomate of the ECVCP must supervise the training programme. This Diplomate shall be responsible for the administration and continuity of the programme and the evaluation at regular (at least each 6 months) intervals of performance and progress of the trainee. In approved cases (alternative training programme) other veterinary clinical pathology specialists can act as supervisors.

(c) **Duration of Training.** The training programme shall be a minimum of 36 months duration accomplished within 5 consecutive years.

(d) **Content of Training.** The 3-year training programme shall consist of a minimum amount of training of similar periods of time in each of the following 4 areas: general clinical pathology (pathophysiology -including immunology- and laboratory

management), clinical biochemistry including endocrinology and molecular diagnostics, haematology, and cytology. Additionally, the programme will include some training by direct contact with diplomates or similarly qualified persons in clinical medicine and morphologic pathology (especially histopathology). The purpose of this training is to develop understanding and experience with the interaction of these areas with clinical pathology and not to develop expertise in these areas. Ideally this training will be regular and continuous but if this is not available then at least a total of one months rotation in each of these specialities is acceptable. The main species to be studied are companion animals (primarily dog and cat and rabbit), farm animals (primarily cattle, sheep, pigs, and poultry), horses, laboratory animals (primarily dog, rat, mouse, monkey), and to a lesser extent non-traditional pet species (birds, fish, reptiles), zoo animals and wildlife.

Specific topics to be covered in training include:

(i) Pathophysiological mechanism of clinical pathologic changes at a molecular cellular, organ and whole animal level

(ii) Current principles and practices of Laboratory Management including:

Selection, evaluation and validation of assay methods and technologies;

Sample collection and processing for clinical biochemical, haematological and cytological analysis;

Good laboratory practice, quality control, proficiency testing, and laboratory auditing;

Computerised data collection and management;

Statistical analysis of data and establishment of reference intervals;

Basics of epidemiology and study design;

Evaluation of diagnostic efficacy and efficiency (sensitivity and specificity) of diagnostic tests;

Laboratory personnel management, including supervision, training, and continuing education

(iii) Current principles and practices of clinical biochemistry, haematology, and cytology, including

Science of the discipline;

Current methods and technologies,

Current routine and esoteric parameters;

Species differences, primarily for companion animal, large animal, and laboratory animals, and major differences for exotic animals, poultry, and fish;

Integration of data with that from other areas of clinical pathology;

Integration of data with data/information from clinical medicine, morphologic pathology (especially histopathology) and immunology where appropriate

(e) **Learning environment:**

(i) The programme should emphasize basic understanding of pathophysiologic mechanisms of clinical pathology changes at a molecular, cellular, organ and whole animal level,

(ii) The environment should provide the intellectual and physical facilities for the advancement of the science of veterinary clinical pathology through structured discussion, review of current literature, practice of veterinary clinical pathology, research and publication.

(iii) Clinical Pathology Laboratory standards that must be met include adequate facilities, compliance with health and safety standards, written operational procedures and policies, current methodologies and technologies, a programme for quality management including quality control and proficiency testing, a laboratory information management system, documentation of personnel training and development, and a duty clinical pathologist, who has guided all aspects of laboratory management.

(f) **Reference Material:** In addition to their practical knowledge and experience, trainees will be expected to have thorough knowledge of the material covered in a comprehensive and current textbook of veterinary hematology (eg Schalm's Veterinary Hematology edited by Feldman et al), clinical biochemistry (eg Veterinary Clinical Biochemistry, edited by Kaneko et al) and cytology (Diagnostic Cytology by Cowell and Tyler). A complete list of such approved textbooks will be identified on a regular basis by the Education Committee. Because textbooks cannot remain completely current, trainees also need knowledge of the current (up to 5 years old) literature on veterinary clinical pathology in the veterinary literature. The Education Committee will maintain a list of such journals. Current knowledge of the pathophysiologic basis of clinical pathology changes is obtained from the above textbooks supplemented by relevant sections of current textbooks of internal medicine or pathology or general pathology. Current knowledge of laboratory management is obtained from relevant sections of textbooks in human clinical pathology (eg Clinical Chemistry edited by Tietz). The Education Committee will maintain a list of such textbooks.

(g) **Documentation:** The trainee must maintain a log that records the nature and timing of their training activities and that is approved by the supervisor every 6 months. This log should include (i) relevant courses or tutorials taken, (ii) identification of, and diagnosis (tentative or differential and / or etiologic) for, cases (at least an average of 25 per 6 month in each of the three areas) examined and

interpreted in each of the three area of biochemistry, hematology, and cytology; (iii) rotations or externships in other relevant disciplines or to other training sites, (iv) relevant seminars, workshops or conferences attended, and (v) any relevant presentations or publications.

5.5 Alternative Veterinary Clinical Pathology Training Programme

This training programme is designed to allow veterinary graduates, employed outside a teaching institution, to undertake the additional training needed to become eligible to take the Diplomate examination.

(a) **Prerequisite:** See 5.4 (a)

(b) **Diplomate supervision:** supervision by a Diplomate of the European College Of Veterinary Clinical Pathology is strongly encouraged, but also other veterinary clinical pathology specialists may act as supervisors. If the primary supervisor is not a diplomate then the completion of alternate training and application for candidacy for the examination should be countersigned by a diplomate of the college who has knowledge of the programme which was undertaken.

(c) **Duration of Training:** The training programme shall be a minimum of 48 months duration accomplished within 5 consecutive years. Candidates must spend, at least, a total of one year working in an approved training programme, as described under 5.4 and a minimum of one month per each of the additional 3 years in formal course work or in secondment at a different institute for training in clinical pathology.

(d) **Content of Training:** see 5.4 (d)

(e) **Learning environment:** see 5.4 (e)

(f) **Reference material:** see 5.4 (f)

(g) **Documentation:** see 5.4 (g) The minimum total number of cases required is 150 in each of the three areas of haematology, clinical biochemistry and cytology.

5.6 Continuing education

National and international continuing education programmes, meetings and courses are essential additional learning sources. Suitable continuing education may include, for example, those programmes, meetings and courses organised by or under the auspices of the European College of Veterinary Clinical Pathology and the American Society of Veterinary Clinical Pathology.

5.7 Facilities, Services and Equipment

Required for training programmes preparing candidates for ECVCP Board Examination include:

(a) **Veterinary / Medical Library:** A library containing current textbooks and journals relating to veterinary clinical pathology and its supporting disciplines must be readily accessible directly or electronically to the programme participant. Additionally, full electronic access to the worldwide websites concerning veterinary clinical pathology must be readily available.

(b) **Clinical Pathological records:** A complete clinical pathological record must be maintained for each individual case and those records must be retrievable.

(c) Clinical Pathology facilities

(i) **Microscopy examination room:** The room(s) for cytological and haematological examination must be designed, constructed and maintained consistent with current concepts. High quality facilities for photomicrography are mandatory. Microscopic slides and transparencies / photographs must be archived and retrievable.

(ii) **Laboratory:** A clinical pathology laboratory must be designed, constructed and maintained consistent with current concepts as defined by the ECVCP Laboratory Standards Committee.

6. PREPARATION FOR THE EXAMINATION

The candidate's goal should be to acquire knowledge sufficient to assume responsibility for the broad spectrum of problems encountered by veterinary clinical pathologists. The College believes training can be best accomplished in units (departments, institutions) where there are several Diplomates of the College and where a primary purpose is training in veterinary clinical pathology. The College recognizes that training also occurs effectively in other settings but believes, in general, it may require more time. Periods of secondment to other institutions are necessary to broaden training and preparation for examination. In addition to academic studies calculated to provide adequate insight into basic principles of clinical pathology, the candidate must have practical experience in performing their professional duties. These should include the application of all standard methods and procedures of clinical pathology to any given case, with a view to demonstrating the nature of the disease process, or to making a diagnosis, or both. While the clinical pathologist need not be a technician in the performance of laboratory procedures, thorough familiarity with the uses, limitations, and application of such tests and instruments and the ability to supervise their performance and to interpret their data are required.

The certificate of membership of the College is granted only after the applicant has completed a period of training and has demonstrated, by thorough formal examination, the ability to perform the duties and assume the responsibilities of a veterinary clinical pathologist. Standards that must be met are strict and the study and training arduous.

7 THE EXAMINATION

The examination is designed to test candidates' (a) understanding of the broad principles of clinical pathology, (b) ability to practice competently veterinary clinical pathology and (c) ability to synthesise data and observations in problem solving.

7.1 The Format of the Examination shall include four parts.

(a) General Clinical Pathology

This section of the examination tests the candidate's understanding of pathophysiology of clinical pathology change (including immunology) and general principles of laboratory management. It will consist of approximate 60 multiple choice questions and 4 essay questions.

(b) Clinical Biochemistry

This section of the examination tests the candidate's understanding of clinical biochemistry. It will consist of approximate 50 multiple choice questions and 4 cases discussed by essay. The cases involve integrated interpretation of biochemical, haematologic, and urinalysis data. Questions will be designed to achieve a balance between species, systems, and diseases.

(c) Haematology

This section of the examination tests the candidate's understanding of haematology. It will consist of three sections, approximately 40 multiple choice questions, 20 questions on projected photomicrographs, and evaluation of 10 haematology glass slides. Required answers include a complete description, a morphologic and an

etiologic (if appropriate) diagnosis, or appropriate differential diagnosis with suggestions for additional diagnostic procedures. Questions will be designed to achieve a balance between species, systems, and diseases.

(d) **Cytology**

This section of the examination tests the candidate's understanding of cytology. It will consist of three sections, approximately 25 multiple choice questions, 25 questions on projected photomicrographs, and evaluation of 15 cytology glass slides. Required answers include a complete description, a morphologic and an etiologic (if appropriate) diagnosis, or appropriate differential diagnosis with suggestions for additional diagnostic procedures. Questions will be designed to achieve a balance between species, systems, and diseases.

Pass-fail lines for the examination are determined prior to the examination. For each part a grade of 60 percent or more is a passing mark.

7.2 Organisation of the Examination

The examination will be held every year at a location in Europe and will be taken in the English language.

7.3 Withdrawal /Illness

Withdrawal prior to the examination or failure to appear for the examination will not constitute an attempt to sit all or any part(s) of the exam, but will count as one of the years for which repeat candidates are eligible to pass any previously failed part(s). A candidate's illness during preparation for, or during the actual examination, will not be considered a valid reason to waive the rules of the College. In the event a candidate starts, but is unable to complete the examination, results will be determined for all sections for which the candidate is scheduled, regardless of the number of sections completed.

8 RESULTS OF EXAMINATION

Candidates are required to satisfactorily complete all parts of the certification examination. Successful candidates are certified as a "Veterinary Clinical Pathologist". All certified persons are designated as Diplomates of the European College of Veterinary Clinical Pathology (Dipl. ECVCP).

A candidate who takes the examination and passes two or three parts out of the total of 4 parts retains credit for the parts passed for the next four years, provided a mark of more than 30% has been attained in the failed parts. Only two additional attempts to pass the failed parts are permitted within these next four years. Candidates who wish to retake the part(s) failed must announce their intentions in a letter received by the Secretary, postmarked not later than March 1st of the year in which they wish to retake the examination accompanied by a fee of 50% of the current registration fee.

Candidates who do not pass the failed parts as described above must reapply as new candidates and retake all parts (see "Application for Certification" section for date, fee and instructions. A new application form is required).

Candidates who attempt all parts of the examination and who fail three or four parts must reapply as new candidates and must retake all parts of the examination. All such candidates must submit a new application form (for date, fee and instructions see "Application for Certification" section).

A candidate who fails a certifying examination may request that the marks of the parts failed be retalled to verify the accuracy of the results reported. The verification process is not intended to evaluate the content or interpretation of the examination or candidate responses but to determine that the scores are correctly totalled. Such requests must be received in writing, accompanied by a fee of 100 EURO, within 30 days of the date of mailing of the results of the examination to the candidate.

9. SIGNIFICANCE OF CERTIFICATION

The European College of Veterinary Clinical Pathology was established in 2002 with the objectives of furthering progress in the science and practice of veterinary clinical pathology and of establishing standards of training and experience which merit recognition of qualified specialists in that field.

The candidates are accepted into the ECVCP on the basis of exacting professional requirements which fit him/her for a highly specialised service. The ECVCP realizes, too, that in identifying an individual as meeting these requirements it stakes its reputation on his/her conscientious rendering of such service and on the commitment of its Diplomates to their own continuing professional development to maintain the College's high standards.