

## The European Register for Specialists in Clinical Chemistry and Laboratory Medicine: Guide to the Register Version 2-2003 and Procedure for Re-registration

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**The European Communities Confederation of Clinical Chemistry and Laboratory Medicine (EC4) opened a Register for European Chemists in 1997. The operation of the Register is undertaken by a Register Committee (EC4RC). During the last 5 years more than 1400 clinical**

**chemists entered the register. In this article an update of the first Guide to the Register is given, based on the experience of 5 years of operation and the development of the discipline. The registration is valid for 5 years. In a second part the procedure and the conditions for re-registration are presented.** Clin Chem Lab Med 2003; 41(2):238–247

*Key words:* European Register; Education; Registration; EurClinChem.

*Abbreviations:* CA, Committee of Appeal; CE, continuing education; CPD, continuing professional development; EC4, European Communities Confederation of Clinical Chemistry and Laboratory Medicine; EC4CA, EC4 Committee of Appeal; EC4RC, EC4 Register Committee; NC-CRC, National Clinical Chemistry Registration Committee.

### Introduction

The European Communities Confederation of Clinical Chemistry and Laboratory Medicine (EC4) decided to promote recognition of the profession by establishing a Register for Clinical Chemists. The Register ensures common standards of education, training, experience and compliance, as well as continuous professional development of the registrants. The first Guide to the Register was published in 1997 (1). The Guide to the Register gives the minimum standards of clinical chemistry education, organizes the operation of the Register and defines the procedures, whereas in the syllabus (2) the content of clinical chemistry as to be achieved for professional competence is listed. According to the guide a Register Committee (EC4RC) was formed including delegates from each member state of the European Union. EC4RC started to work in 1998. EC4RC was setting up the internal institutions, was organizing the workflow and was judging the incoming application forms. The registration process itself started in September 1998, when the first European Clinical Chemists had been accepted. Today more than 1400 clinical chemists from nine of the 15 EU countries had entered the Register.

During the operation of the Register it became necessary to develop procedures and to add some definitions. These changes had no influence on the level of evaluation but optimized the work of EC4RC. These alterations are part of the updated Guide to the Register presented here. The title of the Guide now includes the term laboratory medicine. This is in agreement with the syllabus and the practice of clinical chemistry in the

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EU (2, 3) and is also expressed by the name of EC4 (European Communities Confederation of Clinical Chemistry and Laboratory Medicine). The title has changed to "European Specialist in Clinical Chemistry and Laboratory Medicine", the abbreviation EurClinChem remains unchanged.

Countries having a national education scheme and a national register have been able to present their education standards to EC4RC. If the national conditions met the EC4 requirements, equivalence of standards was agreed by EC4RC and the applications run through a simplified registration procedure. Applicants should both conform to the EC4-approved national equivalence of standards for registration and be member of their national register, where one exists.

The election of the chairman of EC4RC and the term of office is now defined, as well as the election of the members of the Committee of Appeal and their term of office. The code of conduct (1) remains valid until an update is given in an additional paper.

Registration is valid for 5 years. The re-registration procedure remained open in the first version of the

Guide. The guidelines for the re-registration procedure are here given in a separate paper, which is added to the updated guide presented here. For re-registration two main conditions are asked for. The applicants have to continue in practice as clinical chemists and they have to participate in continuing professional development programs. These programs are now evolving at national levels and the applicant has to follow the national schemes.

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# European Communities Confederation of Clinical Chemistry and Laboratory Medicine

## Guide to the European Register of Specialists in Clinical Chemistry and Laboratory Medicine: European Clinical Chemist

2nd Revision; Approved at the EC4 Register Committee Meeting in Amsterdam, December 9th 2001.

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#### I. Introduction

##### 1.0 Clinical Chemistry

According to the definition of the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), the name Clinical Chemistry will be used throughout this document. The specialty is defined as follows:

“Clinical Chemistry is the application of chemical, molecular and cellular concepts and techniques to the understanding and the evaluation of human health and disease. At the core of the discipline is the provision of

results of measurements and observations relevant to the cause of disease, the maintenance of health and the conversion of these data into specific and general patient- and disease-related information at the laboratory clinician interface. The discipline is committed to deepening understanding of health and disease through fundamental and applied research (1).”

In addition it is stated that: “Clinical Chemistry is the largest subdiscipline of Laboratory Medicine which is a multidisciplinary medical and scientific specialty with several interacting subdisciplines such as haematology, immunology, clinical biochemistry, and others. Through these activities clinical chemists influence the practice of medicine for the benefit of the public.

In many countries, the practice of clinical chemistry includes traditional clinical biochemistry as well as components of microbiology, haematology, molecular biology and immunology. Clinical Chemists are responsible for comprehensive laboratory services including, for example, management, quality assurance and informatics. They frequently conduct research in laboratory medicine. For these reasons their professional education needs to include basic scientific, analytical, clinical and management training combined with informatics.”

Where “analysis” is written, the complete analytical process, including pre- and post-analytical phases, is understood.

In different member states of the European Union (EU) the designation for Clinical Chemistry appears either by specialty denomination of Clinical Chemistry or associated with or included in other specialties under a broader denomination.

The designations for the specialty in the member states of the EU are:

Austria	Medizinische Chemie, Laboratoriumsdiagnostik
Belgium	Biologie Clinique/Klinische Biologie
Denmark	Klinisk Biokemi
Finland	Kliininen (Bio)Kemia
France	Biologie Clinique
Germany	Klinische Chemie, Laboratoriumsmedizin
Greece	Klinikè Chimeia
Ireland	Clinical Biochemistry
Italy	Biochimica Clinica, Patologia Clinica
Luxembourg	Biologie Clinique/Biochemie
Netherlands	Klinische Chemie
Portugal	Pwalises Clinicas/Patologia Clinica
Spain	Bioquímica Clínica
Sweden	Klinisk Kemi
United Kingdom	Clinical Biochemistry / Clinical Chemistry / Chemical Pathology

Thus, Clinical Chemists are medical laboratory specialists having knowledge of, expertise in, and responsibility for, a broad spectrum of diagnostic laboratory investigations.

## 2.0 EC4

The European Communities Confederation of Clinical Chemistry and Laboratory Medicine (abbreviated as EC4, see ref. 2) is the organization linking all clinical chemistry associations within the different member states of the European Union (EU), recognized by the IFCC for that member state within the EU. It was founded in 1973 and its constitution formalized in 1993. The Articles of Association were drawn up in Amsterdam September 2002.

Moreover, close links exist with the Forum of European Societies of Clinical Chemistry and Laboratory Medicine (FESCC), which is the European organization of clinical chemistry associations, recognized by the IFCC within the whole of Europe, as it is defined by the World Health Organization.

### 2.1 Objectives

The present objectives of EC4 are:

- a) to promote the advancement of Clinical Chemistry within the EU towards the European Commission, the European citizens and the medical profession, and to do all such things as may in the opinion of the Board of EC4 spread or increase the knowledge and standing of Clinical Chemistry within the EU, cooperating thereby with FESCC and IFCC;
- b) to advise the EU on Clinical Chemistry matters;
- c) to cooperate with standardization bodies on all matters relating to Clinical Chemistry;
- d) to promote the regulation of the profession of Clinical Chemistry in the EU by maintaining a Register and by furthering the establishment of a common platform within the frame of the EU system of directives regarding professional recognition, describing the practitioners of the discipline and the standards of education, training, and experience required to achieve "Registered Clinical Chemist" status;
- e) to coordinate the automatic and mutual recognition of European Clinical Chemists on the basis of equivalence of standards and to promote the recognition of the European Clinical Chemist title and to protect it;
- f) to foster high standards of professional education and practice by organizing and auditing through the National Associations of member states training programs for practitioners of the profession and programs of continuing education for practitioners of the profession, and by regularly reviewing them;
- g) to cooperate with any examining body in a clinical or basic science subject in promoting suitable qualifying examinations for members of the profession of Clinical Chemistry;
- h) to foster high standards of continuous professional development and medical education, and to introduce relating requirements for re-registration in the Register;

- i) to advise on the desired number of clinical chemists in a laboratory, depending on the size and service of the laboratory;
  - j) to publish guidelines for the laboratory investigation of disease;
  - k) to promote accreditation of laboratories where clinical chemistry is practised by the formulation of requirements which encompass all aspects of quality and competence and to recognize a body within the member state to ensure that such standards are met;
  - l) to coordinate the examination and evaluation of scientific equipment and reagents for use in clinical chemistry laboratories;
  - m) to advise on suitable design and size of laboratories.
- In pursuit of these aims, EC4 maintains a Register to which individuals may be admitted provided they meet the specified minimum requirements.

## II. The EC4 Register

### 3.0 Premise

In each Member State laboratory medicine is organized within its own national health care system. EC4 respects these different structures and has created a Register based on a syllabus for post-graduate training in order to:

- a) guarantee that the minimal requirements for the education and training of the individual clinical chemist have been fulfilled for the benefit of health care in general, and the individual patient;
- b) facilitate the comparability of professional training of clinical chemists inside the EU and to establish a framework of mutual recognition of qualifications, and facilitate the free movement in order to provide clinical chemists who wish to practise outside their country with a guarantee of ability;
- c) encourage a continuous updating of the quality of Clinical Chemistry and its practitioners by setting, monitoring and reviewing standards for the definition and practice of Clinical Chemistry in the EU;
- d) provide a source of information about the different systems of education and training in the member states.

### 4.0 Professional training

EC4 has judged the respective values of the educational and professional systems in Europe and composed a syllabus comprising all subjects necessary to achieve a high level of professional competence.

This European Syllabus for post-graduate training in Clinical Chemistry (see also ref. 3; latest version 1999 ref. 4) describes the minimal scientific content of professional knowledge and training, appreciating the responsibility of each member state to organize laboratory medicine within its own national health care system. Thus, although significant differences exist in the practice of Clinical Chemistry throughout the EU, a great number of core elements can be discerned. These are considered to be the minimum scientific requirements for those who want to be registered as a

specialist. The attainment of these competences is the threshold, which opens the right to registration. Since the professional activities also imply in most cases managerial responsibilities, it is important that the subject of laboratory organization and management is included in this training period.

The specialist who is registered on the basis of the above standards not only fulfils the professional objectives of EC4 but is also eligible to be the head of a laboratory, one of the conditions necessary for its accreditation (Section 2.1 k).

### 5.0 Minimum standards

The education of Clinical Chemists in the EU can be said to be based in all countries on an identical scheme. It comprises a university education, followed by a specialization in Clinical Chemistry. The standards stipulated below are the minimum required for admission to the register.

#### 5.1 Minimum standards to enter specialty training

The minimum standard to enter specialty training is a university degree in medicine, chemistry, biochemistry, pharmacy, or another relevant basic science subject, which allows entry to the post-university specialty training.

#### 5.2 Minimum standards for registration as a European Clinical Chemist

The minimum standard for registration as a European Clinical Chemist is a total of 9 years of university and postgraduate study. A minimum of 4 years of postgraduate study after gaining a university degree must be spent on specialist training in a laboratory in a medical environment approved and supervised by the national body functioning for that purpose within the health care system of the member state.

#### 5.3 Evolution of Clinical Chemistry

In a number of countries within the EU there is an increasing trend for Clinical Chemistry to encompass a number of disciplines. As a result the professional training can be multidisciplinary (*i.e.*, Clinical Chemistry and for example Hematology, Immunology, *etc.*), as well as in a single discipline (*i.e.*, Hematology). Training could be multidisciplinary initially, followed by specialization. In all cases the conditions as specified in Section 5.2 will be valid.

### 6.0 Title

Registration as "European Specialist in Clinical Chemistry and Laboratory Medicine" gives the right to be called European Specialist in Clinical Chemistry and Laboratory Medicine in the language of the national member state and to use the professional title European Specialist in Clinical Chemistry and Laboratory Medicine, abbreviated EurClinChem (invariable in all member countries) with the national title, if lawful.

### 7.0 Competencies

Clinical chemists having obtained registration in the EC4 register for Specialist in Clinical Chemistry and Laboratory Medicine should be aware of their professional responsibilities and should have achieved competence in the following:

- a) understanding of the registrants' responsibility in the practice of his profession to the well-being and personal safety of his patients, colleagues, and co-workers, to the community, and to the environment;
- b) thorough knowledge of all aspects of clinical laboratory sciences relevant to the discipline practised as specified in the syllabus (Section 4.0);
- c) ability to obtain, to explore, and to employ knowledge and methods of investigation in the interest of healthcare and mankind;
- d) broad knowledge of and insight into biochemical processes in human health and disease on a general and patient-specific level;
- e) ability to work in a multidisciplinary environment and function as a consulting advisor to his clinical colleagues and liaise with them in the interpretation of laboratory results;
- f) ability to safeguard and protect the public against misuse of medical laboratory investigations;
- g) knowledge of the principles of management leading to adequate direction, supervision, and organization of a laboratory department in a public or private hospital or in any other health care environment resulting in the provision of competent service as laid down in a laboratory quality manual, based on good laboratory services as defined in EN-ISO document 15189 and the EC4 Essential Criteria (5–7);
- h) ability to assess conflicting and various technical, financial, and human considerations (*e.g.*, care, quality, safety, cost, and time scale) both in the short and long term, and to find the optimal solution in relation to patient care;
- i) adequate ability to apply current techniques in human resources management;
- j) ability to communicate orally and in writing, including the production of clear, cogent reports and publications in refereed international scientific journals;
- k) knowledge of, and insight into, the use of technology and analytical techniques relevant to the field of specialization, an active appreciation of developments, and an attitude of innovation and creativity in their implementation in the profession of clinical chemistry;
- l) ability to take responsibility for the data and information produced, including knowledge of the influence of variation (biological as well as analytical) on interpretation of data;
- m) appreciation of developments both in science and technology and also in the understanding of disease in order to ensure the appropriate use of laboratory investigations and to optimize the advice provided on those investigations (see also 4).

### 8.0 National registers

EC4 acknowledges the national registers as they func-

tion in the member countries and provides that they are in accordance with the minimum requirements and are based on curricula, which make it possible for candidates to develop towards professional competence as described in Section 4. Applicants should both conform to the EC4 approved national equivalence of standards for registration and be a member of their national register, where one exists. In those member states in the EU where Clinical Chemistry training is not (presently) organized according to the pre-defined requirements, the EC4 Board, the EC4RC (Section 9.1) and the National Registration Commission (Section 9.2) need to ensure that that standards required for each national register meet the minimum standards required for the EC4 Register.

The extra duration of the education in EC4 terms should be specified.

### III. Operation of the Register

#### 9.0 EC4 bodies

The EC4 Board *via* its EC4 Register Commission (EC4RC, Section 9.1) is responsible for the Register and for modification of the standards in the light of changing technology or other developments. Standards are accordingly reviewed at regular intervals of not more than 5 years.

The European Register is maintained by the EC4RC (Section 9.1) and is administered by the EC4 Secretariat General which keeps records of the registrations. Whenever possible, the EC4RC will in its decisions seek advice of the National Clinical Chemistry Register Committees, NCCRCs (Section 9.2).

#### 9.1 The EC4 Register Commission, EC4RC

The Register Commission is composed of one delegate from each member state, preferably members of the NCCRC, and members of the Board of EC4. National delegates would be mandated members of the national society recognized by IFCC but they need not be officers of that society. The delegates should be registered European Clinical Chemists, if possible. If there exist more than one NCCRC in a member state, *e.g.*, for different academic origins, the national delegate should be a joint delegate.

The chairman of the EC4RC is chosen by the Commission and is in this capacity member of the EC4 Executive Board. The term of office for the chairman is 3 years with maximum one extension term.

The President and Secretary of the EC4 Executive Board are associate non-voting members of the EC4RC.

The EC4RC decides on the minimum requirements for registration and re-registration.

The EC4RC decides on the granting to National Registers of Equivalence of Standards of the national training scheme, including the level of admission to the scheme.

The EC4RC decides on the eligibility of the candidates for registration.

By the 1st of March of each year the EC4RC circulates to its members a compilation of the numbers of applications from the different member states for the European Specialist in Clinical Chemistry and Laboratory Medicine title made during the previous calendar year.

#### 9.2 The National Clinical Chemistry Register Committees, NCCRCs

The National Clinical Chemistry Register Committees, NCCRCs are national bodies composed of representatives from the national clinical chemistry associations and the government, or any other body recognized for the purpose in that member state. It is the task of these Committees to keep EC4RC well informed on the national education structure.

The NCCRC assesses the suitability of candidates to hold the title of Registered Clinical Chemist of that member state. Registrants in their National Register may then apply to EC4RC to be recognized as European Clinical Chemist.

Applications for the European Register are sent to the NCCRC. The NCCRC checks whether the applicant fulfils the national requirements. The NCCRC sends the application accompanied by an advise to the EC4RC secretariat.

NCCRC is responsible for checking that the application fee to the Register is paid according to procedure(s) agreed upon, and prior to sending the application to the EC4RC.

In January of each year, the EC4 Secretariat General communicates to NCCRCs any changes to the Register of European Clinical Chemists.

#### 9.3 The EC4 Committee of Appeal, EC4CA

The EC4 Committee of Appeal, EC4CA, is a European body composed of five independent experts from representative member states. Delegates are proposed by the NCCRC's and accepted by EC4 General Assembly. Term of office is maximum 5 years. EC4CA elects a chairman responsible for EC4RC and individual applicants. EC4CA acts on behalf of the EC4 Board in adjudicating on cases of applicants who appeal against a decision of the EC4 Board not to grant registration. EC4CA also advises the Board and EC4RC on equivalence when applicants have not followed standard education or training programs.

#### 9.4 Custody of the European Register

The European Register is kept the EC4RC. As stated under 9.2, in January of each year, the EC4 Secretariat General communicates to NCCRCs any changes to the Register of European Clinical Chemists.

### IV. Procedures

#### 10.0 Application

Application is open only to individuals who have the required qualifications, *i.e.*, they must be trained and/or registered in an EU country.

### 10.1 Validation of applications

#### 10.1.1 EU citizens trained within the EU

As a general rule, an EU citizen registered in an EU country is automatically eligible for EU registration by the EC4RC, if the national register has been granted equivalence of standards. It is the responsibility of the NCCRC of the country of registration to check the validity of his/her university education (as specified in 5.1) and professional training. Consequently, the minimum EC4 requirement has then been fulfilled (Sections 5.2 and 5.3).

An EU citizen who is not registered in an EU country but was trained within the EU can apply for an EU registration to the EC4RC. It is the responsibility of the EC4RC to check the validity of his/her university education and professional training (see previous paragraph).

All applications must be made directly to EC4RC, and where applicable, accompanied by a statement from the NCCRC of the country of registration supporting the applicant and stating that the applicant has the necessary qualifications for registration as a European Clinical Chemist.

If the education and training are assessed as adequate it would be assumed that the applicant has achieved competence as defined in Section 7.0.

#### 10.1.2 EU citizens trained outside the EU

EU citizens trained outside the EU and registered in an EU country can be considered for EU registration only if they have undergone a university education and professional training which meet the EC4 criteria. It is for the NCCRC of the country of registration to provide the EC4RC with the evidence to support the candidate. The final decision is with the EC4RC. The EC4RC does not give general decisions on the equivalence of diplomas or degrees accepted in EU member states.

#### 10.1.3 Non-EU citizens

Non-EU citizens may be eligible for registration only if education and/or training of the applicant has taken place in an EU country according to the predefined conditions. The NCCRC of the country of training (and, when different, of country of registration) must support the application.

Non-EU citizens not trained in an EU country are not eligible for registration.

### 10.2 Registration as a European Specialist in Clinical Chemistry and Laboratory Medicine

The EC4RC decides on the basis of Sections 10.0 and 10.1. the eligibility of the candidate for registration. Successful candidates are included in the Register centrally maintained by the Secretariat General.

Persons registered as European Specialists in Clinical Chemistry and Laboratory Medicine must abide by the EC4 Code of Conduct.

Any application not approved will be returned to the NCCRC and reasons for failure will be given.

In cases where the decision of the EC4RC is contested the EC4 Committee of Appeal may be engaged.

### 10.3 Certificates

Registration as a European Specialist in Clinical Chemistry and Laboratory Medicine is attested by a certificate, which is prepared by the Secretariat General and signed by the President, the Chairman of the EC4RC and one Board Member of EC4.

### 10.4 Renewal of registration

Continuing registration as a European Specialist in Clinical Chemistry and Laboratory Medicine is dependent on the registrant remaining in practice and observing the EC4 Code of Conduct.

Registration should be renewed every 5 years through the relevant NCCRC.

### 10.5 Finances

EC4 and each national Clinical Chemistry association bear the costs of the administrative work involved in operating the Register and are entitled to recover this cost by charging a fee to the applicants.

## V. Points of Contention

All cases of doubt or difficulty, relating to decision on individual applications, are referred to the EC4 Committee of Appeal (see 9.3) for decision. An individual may subsequently appeal in writing against this decision to the EC4 Board, whose decision is final and without appeal.

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# European Communities Confederation of Clinical Chemistry and Laboratory Medicine (EC4)

## European Specialist in Clinical Chemistry and Laboratory Medicine (EurClinChem)

### Procedure for Re-registration

Final version approved at the EC4 Meeting in Amsterdam, June 9th 2002

#### Introduction

The Register commenced in 1998. Since that time roughly 1500 EurClinChem registrations have been approved.

The Guide to the Register states that registration should be renewed every 5 years through the relevant National Clinical Chemistry Register Committee (NCCRC). However, the Guide does not specify the details for re-registration. This document has been prepared to clarify the procedure for re-registration. It was developed by the EC4 Register Commission (EC4RC) and approved by the EC4 Executive Board. The procedure will commence in 2003.

#### Six Elements of Re-registration

It has been agreed that there are six elements of re-registration:

##### 1. Continuing equivalence of standards

Re-registration of an individual will normally be *via* the National Clinical Chemistry Registration Committee (NCCRC). At five yearly intervals, or sooner if change occurs, each NCCRC shall seek formal approval from EC4RC that equivalence of standards for the national and European register has been maintained. EC4RC can only confirm re-registration by NCCRCs when it has evidence of continuing equivalence of standards.

##### 2. Continuing registration in the NCCRC

It is a condition of re-registration that each applicant must remain a member of his/her own national register (if one exists). This question is asked on the re-registration application form and the signatures of the applicant and the representative of the NCCRC are taken as confirmatory evidence.

##### 3. Continuing in active practice

It is a condition of re-registration that each applicant continues to be an active practitioner in Clinical Chemistry and Laboratory Medicine. This will be met if the

practitioner is in appropriate full-time employment. There may be circumstances when an individual in part-time employment or between jobs may be considered to be an active practitioner but it is the responsibility of the applicant to produce evidence to this effect. This question is asked on the re-registration application form and the signatures of the applicant and the representative of the NCCRC are taken as confirmatory evidence.

##### 4. Continuing professional development

It is a condition of re-registration that each applicant is actively engaged in continuing professional development (CPD). There are many different approaches to CPD and EC4 cannot be prescriptive in this area beyond the two principles outlined in Appendix 1. Each NCCRC shall obtain approval from EC4RC of a written statement of how it intends to assess that an applicant is engaged in a program of CPD that is in line with the guidance provided in Appendix 1. This question is asked on the re-registration application form and the signatures of the applicant and the representative of the NCCRC are taken as confirmatory evidence.

##### 5. Continuing observance of the Code of Conduct

It is a condition of re-registration that the applicant continues to observe the EC4 Code of Conduct. This question is asked on the re-registration application form and the signature of the applicant is taken as evidence of acceptance of this condition.

##### 6. Payment of fee

It is a condition of re-registration that the applicant pays the re-registration fee. This fee is fixed at 80% of the original registration fee and the current fee is specified on the re-registration application form. Collection of this fee (by credit card payment or other means) is evidence of compliance with this element of re-registration.

#### Re-registration Application Form and Process

The re-registration application form is to be found on the EC4 website. This is very similar in content and design to the application form for the initial registration – the main difference being the need to produce evi-

dence of CPD rather than of education, training and experience.

The EC4 Register Secretariat will send individual EurClinChems the re-registration application form 3 months prior to the expiry of their 5-year registration period. The practitioner will complete the form, sign it and submit it together with payment to his/her NCCRC in a manner identical to the original application. A counter-signature from a representative of an NCCRC, who has approval for its assessment of CPD, will effectively confer re-registration on the applicant, although this will be formalized through EC4RC using the same mechanism as the initial registration.

The handling of non-standard applications for re-registration (*e.g.*, where there is no NCCRC) will follow the same route as for initial registration. Appeals against decisions on re-registration will also follow the same route as for initial re-registration.

### Appendix 1: Continuing Education (CE) or Continuing Professional Development (CPD)

#### *Two principles*

It is suggested that there should be two principles underpinning programs of CE or CPD that are suitable for meeting the requirements of re-registration with the European Clinical Chemist Register.

1. The Clinical Chemist must undertake structured CE or CPD relevant to his/her professional role and be able to produce documentary evidence of ongoing participation.
2. The minimum time commitment to any programme of CE or CPD should be 50 hours per year (approximately 1 hour per week).

#### *Content of CE or CPD programs*

The content of CE or CPD programs will vary between countries. Therefore, the list of activities given below should be seen as purely illustrative:

- Oral presentation of research findings
- Poster presentation of research findings
- Attendance at approved scientific meetings
- Publication of research paper
- Research grants obtained
- Serving as a referee or editor for a scientific journal
- Postgraduate teaching including supervision of research students/fellows
- Participation in journal clubs (or similar)
- Evidence of regular reading of relevant scientific or management journals
- Attendance at approved CE or CPD training courses
- Attendance at relevant management courses
- Completion of approved distance learning exercises
- Completion of relevant computer-aided learning programs
- Completion of relevant clinical audit projects
- Completion of CE or CPD targets in personal development plans (appraisal)
- Being an office bearer in a relevant national or international professional body
- Serving as external examiner or inspector for a university or laboratory
- Being an appointed advisor for government or a scientific or regulatory body
- Participating in a successful laboratory accreditation (or similar)
- *Etc. etc.*

#### *Documentary evidence*

At a national level there may be a formal CE or CPD scheme that complies with the two principles listed above. In such circumstances the only evidence required for re-registration would be a certificate (or a similar document) confirming ongoing participation in the scheme. In the absence of a formal CE or CPD scheme the NCCRC should specify the level of evidence that it requires for re-registration and include this as part of the application for approval from EC4RC.