# COMPETENCES REQUIRED FOR APPLICANTS TO ATTAIN STATE REGISTRATION AS CLINICAL SCIENTISTS

# SPECIALTY : HAEMATOLOGY

Association of Clinical Scientists

This document comprises a discipline-specific version of the general competence document and provides additional guidance as to how to complete the general document, Appendix 1 of the Guidelines, that you must submit with your application.

Remember that the aim of the process is for the candidate to satisfy the assessor that he or she has the appropriate basic qualifications and length of experience for issue of the Certificate of Attainment, and that the training programme/period of supervised practice has enabled the candidate to achieve the basic level of competence required for registration as a clinical scientist.



Created: 19 August 2002
Modified: 1 July 2009
Reference: DOC-ACS016-Specific Competences-Haematology
Version: Rev-04 – Re-mapping to revised HPC Competences and Re-Titled Professional Accountability competence area.

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| **EXPERIENCE**: | The candidate should be able to demonstrate that he/she has worked in an environment that has enabled the individual to receive training and gain experience relevant to the competences set out below. |

| GENERIC COMPETENCES | | SPECIFIC COMPETENCES |
|---|---|---|
| **HPC Standards of Proficiency Code – Clinical Scientist** | **1-SCIENTIFIC** | Be able to demonstrate the rigorous application of scientific methods in his/her experience to date |
| 3a.1 | • understanding the science that underpins the specialty (modality) and the broader aspects of medicine and clinical practice | • must understand the principles of the techniques and methods employed in haematology<br>• must be able to advise on appropriate choice of investigation and sample preparation<br>• must be familiar with the evidence for, and limitations of, common haematological procedures used in the diagnosis and management of patients<br>• must have a basic knowledge of related disciplines in order to be able to integrate relevant diagnostic results into an interpretation<br>• must be familiar with information on developments and needs in haematology |
| 3a.1 | • demonstrating a strong base of knowledge appropriate to the specialty and to the investigations and therapeutic options available | |
| 2b.1 | • experience of searching for knowledge, critical appraisal of information and integration into the knowledge base | |
| 2b.4 | • ability to apply knowledge to problems associated with the routine provision, and development, of the service | |
| 2a.1 | • ability to identify the clinical decision which the test/intervention will inform | |
| 2a.3, 2c.1 | • ability to make judgements on the effectiveness of procedures | |
| 2a.2 | • application of the knowledge base to the specialty (modality) and to the range of procedures/investigations available | |
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| *Achievement of:* | • an understanding of the methods employed in the practice of haematology<br>• a critical understanding of the application of investigative protocols and diagnostic tests in the assessment of haematological disorders<br>• a critical understanding of the integration and interpretation of haematology parameters with other relevant diagnostic parameters in the overall clinical assessment of the patient<br>• a critical understanding of scientific method and the tools required to successfully evaluate, develop and/or modify both current and emerging technologies as routine diagnostic tools in haematology<br>• a critical understanding of classification criteria for disease entity<br>• a critical understanding of diagnostic criteria in determining disease prognosis and outcome |
| *Achieved through:* | • participation in a nationally approved training program<br>• secondment to specialist units where appropriate<br>• participation in local research meetings and evidence of supervised and collaborative research initiatives<br>• the presentation of outcomes of method evaluations, protocol development and clinical research initiatives of a standard suitable for publication<br>• registration for a research Masters degree |
| *Assessed by:* | • the locally nominated supervisor and a nationally appointed assessor |



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| GENERIC COMPETENCES | | SPECIFIC COMPETENCES |
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| **HPC standards of Proficiency Code – Clinical Scientist** | **2-CLINICAL** | Be able to demonstrate the following relevant to the contribution of his/her specialty to patient care: |
| 2a.4, 2b.2, 2c.1 | • ability to provide interpretation of data and a diagnostic (therapeutic) opinion, including any further action to be taken by the individual directly responsible for the care of the patient | • must understand the underlying mechanisms of the pathology of disease<br>• must be able to advise on choice of investigation<br>• must be able to interpret data and recommend further course of action within the wider context of the clinical situation<br>• must be able to relate data from other disciplines to the overall clinical situation<br>• must be aware of the strengths and weaknesses of the evidence base for commonly used procedures and investigations<br>• must be able to contribute to monitoring of patients as appropriate within haematology<br>• must have sufficient 'clinical knowledge' to be able to communicate effectively with clinical and other professional colleagues |
| 2b.3, 3a.1 | • understanding of the wider clinical situation relevant to the patients presenting to his/her specialty | |
| 2b.3 | • ability to develop/devise an investigation strategy taking into account the complete clinical picture | |
| 1a.5, 3a.2 | • understanding of the clinical applications of his/her specialty and the consequences of decisions made upon his/her actions/advice | |
| 3a.2 | • awareness of the evidence base that underpins the use of the procedures employed by the service | |
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| *Achievement of:* | • an understanding of general clinical medicine and its application to the physiological systems of man<br>• an understanding of the physiology of man and the effects of disease on physiological processes<br>• an understanding of the effectiveness of therapies and drug interactions on physiological processes<br>• an understanding of the effects of pre- and post-analytical variables required for the appropriate clinical interpretation and assessment of diagnostic procedures in haematology |
| *Achieved through:* | • participation in a nationally approved training programme<br>• secondment to specialist units where appropriate<br>• participation in local seminars, clinical meetings, audit and report evaluation<br>• self-endeavour (eg literature awareness) under the supervision of an appropriate haematology specialist |
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| GENERIC COMPETENCES | | SPECIFIC COMPETENCES |
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| **HPC standards of Proficiency Code – Clinical Scientist** | **3-TECHNICAL** | Be able to demonstrate the following, relevant to the modality or area of specialisation in which he/she wishes to be recognised |
| 3a.2 | • understanding of the principles associated with a range of techniques employed in the modality | • must understand the principles and common techniques used in haematology<br>• must be able to perform analytical procedures to the required technical standard<br>• must understand selection of the appropriate diagnostic tests for each patient<br>• must be able to use knowledge of basic analytic principles to resolve problems associated with methods due to sample or reagent problems or limitations<br>• must have an understanding of the principles of quality management, their practical application to monitoring tests used in haematology and their use to ensure that procedures remain in control<br>• must understand underlying principles and practice with respect to health and safety aspects of work |
| 2b.4 | • knowledge of the standards of practice expected from these techniques | |
| 2b.4 | • experience of performing these techniques | |
| 2b.4 | • the ability to solve problems that might arise during the routine application of these techniques (troubleshooting) | |
| 2c.1, 2c.2 | • understanding of the principles of quality control and quality assurance | |
| 2c.1, 2c.2 | • experience of the use of quality control and quality assurance techniques including restorative action when performance deteriorates | |
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| *Achievement of:* | • an ability to perform common technical procedures in haematology as detailed in the local Standard Operating Procedures that meet the needs of CPA (UK) Limited or its equivalent<br>• a critical ability to review the results and determine the significance of quality control and assessment information for relevant analytical procedures in haematology<br>• a detailed understanding of analytical principles utilised in haematology to facilitate method troubleshooting and the development of adequate procedures of preventative maintenance<br>• an understanding of the hazards (environmental, biological, chemical, radioisotopic) associated with the practice of haematology and the appropriate controlling legislation (eg COSHH) and appropriate procedures of risk assessment (eg RIDOR, clinical governance etc) |
| *Achieved through:* | • participation in an appropriate approved training programme (eg involving use of a log book recording practical experience in the relevant field)<br>• practical instruction at bench level, participation in locally or nationally organised courses<br>• self-endeavour (eg literature awareness) under the tutelage of an appropriate haematology specialist |
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| **GENERIC COMPETENCES** | | **SPECIFIC COMPETENCES** |
| **HPC standards of Proficiency Code – Clinical Scientist** | **4-RESEARCH AND DEVELOPMENT** | Be able to demonstrate a training in research which should include: |
| 2b.1 | • ability to read and critically appraise the literature | •must be able to undertake an assessment of the literature on a selected subject and provide a written critique of this<br>•must be able to design a simple research project with a defined aim and a structured design that addresses this aim<br>•must have the practical knowledge and skills to undertake a research project and to provide a critical written report of the project<br>•must have a knowledge of appropriate available statistical methods<br>•must be able to present the outcome of a research project orally to an audience<br>•must be able to provide a critical appraisal of a research study (publication, report or oral presentation) |
| 2b.1 | • ability to develop the aims and objectives associated with a project | |
| 2b.1 | • ability to develop an experimental protocol to meet the aims and objectives in a way that provides reliable and robust data (i.e. free of bias) | |
| 2b.1 | • ability to perform the required experimental work ability to produce and present the results (including statistical analysis) | |
| 2b.1 | • ability to critically appraise results in the light of existing knowledge and the hypothesis developed and to formulate further research questions | |
| 1b.4, 2b.1 | • ability to present data and provide a critical appraisal to an audience of peers – both spoken and written | |
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| *Achievement of:* | • developed research skills and expertise sufficient to support supervised and collaborative research initiative in haematology<br>• an awareness of the current extent of knowledge in haematology and an ability to employ appropriate information tools to search for, consolidate and critically examine information | |
| *Achieved through:* | • participation in an appropriate approved training programme (eg involving use of a log book recording practical experience in the relevant field)<br>• participation in local research meetings and supervised and collaborative research initiatives, leading to a research Masters degree<br>• self-endeavour (eg literature awareness) under the tutelage of an appropriate haematology specialist | |
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| **GENERIC COMPETENCES** | | **SPECIFIC COMPETENCES** |
| **HPC standards of Proficiency Code – Clinical Scientist** | **5-COMMUNICATION** | Be able to communicate in both the written and spoken media to colleagues, peers and patients: |
| 1a.6 | • ability to assess a situation and act accordingly when representing the specialty | • must be able to communicate effectively with professional colleagues within the discipline and in the wider scientific and clinical community<br>• must be able to present findings effectively in a variety of written and spoken media<br>• must be able to educate and train professional colleagues within and without the department<br>• must understand the requirements and responsibilities associated with the supervision of junior colleagues<br>• must be able to use modern communication devices<br>• must understand basic management techniques and be aware of topical management issues |
| 1a.6 | • ability to respond to enquiries regarding the service provided when dealing with clinical colleagues | |
| 1a.2, 1b.1, 1b.3 | • ability to communicate with patients, carers and relatives, the public and other healthcare professionals as appropriate | |
| 1b.3, 1b.4 | • ability to communicate the outcome of problem solving and research and development activities | |
| 2b.1 | • evidence of presentation of scientific material at meetings and in the literature | |
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| *Achievement of:* | • an ability to communicate effectively to scientific, clinical and managerial colleagues within and without the discipline in both informal and formal settings<br>• an ability to supervise, train and educate others in Haematology Clinical Science<br>• an understanding of and competency to use information technology pertinent to the service and R&D roles of a Clinical Scientist in Haematology<br>• an understanding of basic management principles as applied to a clinical laboratory setting | |
| *Achieved through:* | • a taught element and attendance at approved lectures, meetings and other educational activities<br>• oral and written presentations, ideally including peer-reviewed publications in professional journals and presentations at departmental, local and national scientific meetings<br>• self-endeavour (eg competence in work processing, literature awareness) under the guidance of an appropriately qualified individual | |
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| **GENERIC COMPETENCES** | | **SPECIFIC COMPETENCES** |
| **HPC standards of Proficiency Code – Clinical Scientist** | **6-PROBLEM SOLVING** | Be able to deal with the unexpected and thus be able: |
| 2a.2 | • to assess a situation | • must be able to interpret internal quality control and external quality assurance data<br>• must be able to recognise when a test or procedure is not within adequate performance limits<br>• must be able to recognise the consequences of inadequate performance of individual tests or procedures<br>• must be able to identify potential causes of problems and to investigate these appropriately<br>• must be able to identify and appropriate solution to the problem and propose an effective and timely solution, including any requirement for clinical follow-up |
| 1a.6, 2b.1 | • determine the nature and severity of the problem | |
| 1a.6, 2b.1 | • call upon the required knowledge and experience to deal with the problem | |
| 1a.6, 2b.1 | • initiate resolution of the problem | |
| 1a.6 | • demonstrate personal initiative | |
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| *Achievement of:* | • an understanding of the role, strengths and weaknesses of IQC and EQA in a Clinical Haematology laboratory<br>• an ability to take a holistic approach to assess data outputs in a Clinical Haematology laboratory<br>• an understanding of the principles and application of risk management<br>• an ability to use the knowledge base to address the problem to hand | |
| *Achieved through:* | • a structured taught element and attendance at approved lectures, meetings and other educational activities (eg NEQAS meetings)<br>• practical instruction and experience at a local level eg case studies<br>• self-endeavour under the guidance of an appropriately qualified and experienced individual | |
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| **HPC Standards of Proficiency Code – Clinical Scientist** | **7-PROFESSIONAL ACCOUNTABILITY** | Be able to demonstrate an understanding of management principles and techniques, including the following: |
| 1a.1 | • Understanding of the legal and ethical boundaries of the modality, and the ethical aspects of scientific research. | • must be able to recognise legal and ethical boundaries of the modality and practice and conduct research within these boundaries<br>• must be able to recognise the limits of his/her knowledge and skills<br>• must understand the principles of clinical governance and be able to audit, reflect on and review practice<br>• must understand the need for and basic requirements of accreditation schemes appropriate to the modality<br>• must understand the importance of effective communication with colleagues and be able to function as an effective member of a multidisciplinary team<br>• must understand the principles of appraisal and be able to supervise staff in his/her area of responsibility<br>• must participate in an appropriate CPD scheme (after completion of training)<br>• must have acquired a basic knowledge of health and safety requirements appropriate to the discipline<br>• must have acquired a basic understanding of the structure and organization of the department, and relevant financial aspects. |
| 1a.6 | • Ability to recognise the limits of personal practice and when to seek advice. | |
| 1a.7 | • Ability to manage personal workload and prioritize tasks appropriately. | |
| 1a.3, 1a.4, 2b.5, 2c.2 | • Understanding of the principles of clinical governance including clinical audit, accreditation requirements relevant to the modality. The importance of confidentiality, informed consent and data security | |
| 1b.2 | • Ability to contribute effectively to work undertaken as part of a multi-disciplinary team | |
| 1b.4 | • Ability to supervise others as appropriate to area of practice. Understanding of the role of appraisal in staff management and development. | |
| 1a.8, 2c.2 | • Understanding of the need for career-long self-directed learning and the importance of continuing professional development. | |
| 1a.5, 1a.8, 2b.4, 3a.3 | • Understanding of the need for, and ability to establish and maintain, a safe practice environment. | |
| | • Understanding of the structure and organization of the department and how it fits into the local clinical setting, General understanding of the way the modality is structured and practised in other locations within the UK. Basic understanding of the importance of financial accountability, budgetary control and resource management. | |

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| *Achievement of:* | • an understanding of the management principles and tools used in the service<br>• the ability to act as a professional and work effectively as part of a team<br>• understanding of the importance and principles of accreditation, audit, confidentiality, data security and safe working practice |



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| *Achieved through:* | • a structured taught element (eg approved MSc course or approved lecture programme), participation in appropriate training programmes and local courses on general, personnel and financial management, health and safety, audit, etc<br>• participation in local seminars and meetings, attendance at clinical audit meetings and clinical governance committees.<br>• attendance at departmental management meetings<br>• involvement, under supervision, in management within the laboratory<br>• mentoring by an experienced practitioner |
| *Assessed by:* | • the nominated local supervisor and appropriate professional body external advisor/tutors |



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