

TRAINEE HANDBOOK 2019



Haematology

It is essential to read this Handbook in conjunction with the ***Trainee Handbook – Administrative Requirements*** which is relevant to all trainees. This has information about the College's structure and policies, together with details of requirements for registration, training and examination applications.

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GLOSSARY

ACHS	The Australian Council on Health Care Standards
ANZBT	Australian & New Zealand Society of Blood Transfusion
ARCBS	Australian Red Cross Blood Service
BEA	Board of Education and Assessment
CbD	Case-based discussion
CJCT	Committee for Joint College Training
CPDP	Continuing professional development program
DOPS	Directly observed practical skills
(F)RACP	(Fellow of the) Royal Australasian College of Physicians
(F)RCPA	(Fellow of the) Royal College of Pathologists of Australasia
HIC	Health Insurance Commission
HSANZ	Haematology Society of Australia & New Zealand
IANZ	International Accreditation New Zealand
ISO	International Organization for Standardization
IT	Information technology
LIS	Laboratory information system
NATA	National Association of Testing Authorities
NPAAC	National Pathology Accreditation Advisory Council
OHS	Occupational health and safety
QA	Quality assurance
QAP	RCPA Quality Assurance Programs Pty Ltd
QC	Quality control
RI	Reference interval
SI	Système Internationale (International System of Units)
WHS	Workplace Health and Safety

Section 1

INTRODUCTION

Haematology encompasses both clinical and laboratory aspects of primary disorders of the blood as well as how other diseases affect the blood. Primary haematological diseases can be congenital or acquired and include the various forms of leukaemia and lymphoma, some forms of anaemia and diverse blood clotting/bleeding disorders. Transfusion medicine also falls into the speciality of haematology.

All haematology training must be undertaken in accredited laboratories and under supervision approved by the Board of Education and Assessment. Trainees need to discuss in detail with their supervisors how to achieve a sound knowledge of all aspects of laboratory haematology and transfusion medicine. If the trainee is not exposed to specific specialised techniques in their laboratory it is their responsibility, in conjunction with their supervisor, to ensure techniques are understood. Visits should be organised to departments where specialised investigations are performed.

To gain the FRCPA in haematology requires five (5) years of accredited training and satisfactory completion of the assessment program detailed below. There are two pathways. Training may be undertaken fully according to the RCPA Fellowship program (FRCPA) or under a joint training program with the Royal Australasian College of Physicians (RACP). Trainees in both pathways undertake the same examinations. No more than four (4) years in the one institution will be allowed for RCPA trainees and three (3) years for joint RCPA-RACP trainees.

Please refer to the *RCPA Trainee Handbook - Administrative Requirements* for essential information regarding training limitation, retrospective accreditation of training and temporary suspension of training.

RCPA Fellowship alone (single Fellowship)

The aim of the single Fellowship pathway is to equip trainees with the knowledge, skills and professional attitudes necessary to function as a specialist in the practice of laboratory haematology. They will then have the authority and expertise to organise and ensure a high quality haematology laboratory service and advise on the diagnosis, investigation and monitoring of primary haematological disorders and blood-related problems in other clinical disciplines. An additional responsibility may be the safe provision of donor blood and blood components throughout a hospital or community.

Fellowship is granted on the basis of the trainee having a sound foundation in the basic medical sciences, a thorough understanding of the pathophysiology of haematological disorders and awareness of the latest advances in the field.

Training is for a minimum of five (5) years, with a major emphasis on laboratory practice, including a period of at least two years devoted to acquiring detailed knowledge and practical experience. No more than four years can be spent in any one laboratory. On completion of the Part I examination, trainees may continue in any general or sub-specialty area of haematology, e.g. haematological cytogenetics or transfusion medicine. One year of the five may be spent in a branch of laboratory medicine other than haematology.

A period devoted to a research project in haematology is desirable (although not mandatory, however see requirements for a dissertation during training). Other educational activities such as case presentations, preparation of case reports or subject reviews, participation in utilisation review studies, quality and audit activities and attendance at intra- and extramural scientific meetings are regarded as essential components of the program.

Joint Training Program – Joint Fellowships

The RCPA-RACP Joint Training Program is for those wishing to specialise in both laboratory and clinical practice.

Trainees may enter the joint program when they have successfully completed their Basic Physician training with the RACP and are granted one-year retrospective training credit towards their FRCPA. The FRCPA and FRACP are awarded jointly on completion of the joint program.

The laboratory component requires at least two years gaining detailed knowledge and practical experience in laboratory practice closely related to clinical problems. Training will also include all aspects of laboratory medicine such as safety, quality assurance, and management. **It is expected that only a small proportion of time (up to 20%) will be spent in clinical duties during laboratory training time.**

At least one year will centre on inpatient and outpatient work to achieve competence in managing clinical problems without supervision. Educational activities such as case presentations, preparation of case reports or subject reviews, participation in utilisation review studies, quality and audit activities and attendance at intra- and extra-mural scientific meetings are regarded as essential components of the program. The examinations in laboratory practice are solely under the control of the RCPA Board of Education and Assessment are the same as for trainees following the single discipline RCPA Fellowship pathway.

The joint training program is managed by a Committee for Joint College Training (CJCT) comprising representatives of the RCPA and RACP and representatives of relevant special societies relevant to the discipline. A sub-committee manages New Zealand issues. Training is monitored through annual training program approval and accreditation after submission of the supervisor reports each year. Please refer to the section on Forms and Submissions in the [RCPA Trainee Handbook – Administrative Requirements](#) regarding the submission of forms to the CJCT and the RCPA.

The laboratory component must be undertaken in an RCPA accredited laboratory, where one of the mandatory supervisors is a Fellow of the RCPA or equivalent.

Trainees may not complete their laboratory and clinical training entirely within one institution except under extraordinary circumstances and any exception required approval of the CJCT. At least one year of the four-year program must be spent in a separate institution and may occur in either the laboratory or the clinical component. Change of supervisor to another member of an integrated clinical/laboratory service will not qualify, nor will a change to a different geographical site of an integrated service. Periods of training overseas may fulfil some requirements but prior approval of the CJCT is essential.

Prospective trainees should refer to the [RCPA Trainee Handbook – Administrative Requirements](#) regarding registration with the RCPA and to the [RACP website](#) for regulations applying to training with the RACP.

Note: The RACP also has a clinical haematology advanced training program. Please refer to the RACP handbook for details.

PERSONAL CHARACTERISTICS NEEDED

Haematologists need to have:

- An interest in both technical and scientific laboratory matters;
- Sound clinical skills;
- Interpretive and report writing skills;
- Communication and interpersonal skills;

- The capacity to work as part of a team of medical, nursing, laboratory and administrative personnel;
- The ability to follow through from diagnosis to prognosis to treatment.

GENERAL AIMS OF THE TRAINING PROGRAM

Trainees who have completed the requirements of the training program should have sufficient knowledge and experience for safe, unsupervised practice and be ready for their position as (junior) consultants in the medical multidisciplinary team.

When trainees have completed the Part I examination, they should:

- have advanced knowledge of anatomy, physiology, biochemistry and molecular biology of the cellular and protein elements of blood and of the haematopoietic, lymphatic, vascular and reticuloendothelial systems;
- have advanced knowledge of pathophysiology of haematological and related disorders;
- have theoretical and practical knowledge of the full range of haematological laboratory investigations performed in and referenced from a tertiary referral hospital;
- be familiar with laboratory organisation and management, safety, equipment selection and maintenance, quality control, assurance and improvement;
- be familiar with test selection and interpretation of laboratory data in relation to clinical problems;
- be able to set up new test methodologies and be responsible for quality assurance;
- understand the principles of and interpretation of tests performed in other laboratories of relevance to haematology practice, including methodologies in molecular biology, immunology, biochemistry, cytogenetics, tissue typing, and haematology investigations in nuclear medicine (e.g. red cell mass, plasma volume);
- understand the principles, application, interpretation and limitations of haematological tests in relation to clinical problems;
- have advanced knowledge of Transfusion Medicine, including aspects of donor selection, blood product collection, preparation, storage and distribution, pre-transfusion testing and aspects of transfusion safety;
- have advanced knowledge of the activities of a blood supply agency, including knowledge of screening, testing, product selection and preparation, and supply issues;
- understand clinical/laboratory liaison issues in transfusion safety including patient/specimen identification and diagnosis and management of adverse transfusion-related events.

The general aims of the training program relate to four general functions of haematologists, ie,

- Discipline-specific functions as a medical specialist in the laboratory
- Management functions in the haematology laboratory
- Research and scholarship
- Professional qualities

Furthermore, the RCPA policy on patient expectations of pathologists specifies that pathologists will:

- Demonstrate and maintain competence
- Be respectful of patients
- Treat specimens respectfully
- Foster constructive collegiality and teamwork within the laboratory
- Be part of the medical team looking after patients
- Provide accurate and timely results
- Be professional in their approach
- Be involved in appropriate accreditation and quality activities
- Provide value for public and private expenditure.

These functions are elaborated as specific training outcomes and activities in Section 2.

SUPERVISION

All training must be supervised. It is recommended that any one supervisor be responsible for no more than two trainees.

- **Single discipline trainees:** It is recommended (but not mandated) that a second supervisor be appointed where available, but the primary supervisor should take overall responsibility. The supervisor/s will normally be Fellows of the RCPA however non-Fellows may be approved by the Board of Education and Assessment if no Fellow is available. Trainees working towards higher academic degrees (e.g. PhD), with a research supervisor who is not an RCPA fellow, should nominate an RCPA Fellow as co-supervisor. If a trainee divides the year between two or more unrelated laboratories, more than one supervisor should be appointed.
- **Joint trainees:** It is mandatory for two supervisors to be appointed. The primary supervisor during the laboratory component of training must be a Fellow of the RCPA. The primary supervisor during clinical training must be Fellow of the RACP.

The following conditions apply to both single discipline and joint trainees:

The primary supervisor must certify that suitable supervision is arranged in their absence and/or if the trainee spends significant periods working in an area where the supervisor has no personal involvement

It is expected that there will be teaching and other contributions (e.g. project or research supervision) from senior members of the department other than the supervisor.

While it is not appropriate for supervision to be delegated largely to a non-pathologist, it may be appropriate for senior staff with relevant experience to sign off some workplace-based assessment forms.

The training programs

Supervisors should devise a prospective training program in collaboration with the trainee on initial registration and annually. Supervisors should ensure that the trainee has sufficient time and opportunities to carry out the required training activities.

- **Single discipline trainees:** The training program is included with the initial and annual registration documentation.
- **Joint trainees:** The RCPA accesses the training program via the RACP website for Joint trainees.

Supervisors and others to whom aspects of training have been delegated are expected to monitor and provide regular feedback on the development of the trainee's competence. Regular, formal, documented meetings with the trainee should occur at least every three months, at which time the training program can be reviewed. In addition, supervisors should regularly observe the trainee's laboratory performance and interactions with scientists, peers and clinicians; and review reporting of results. This may be delegated to other trainers where appropriate, e.g., when the trainee is on secondment to another laboratory for a segment of training.

The formal duties of RCPA supervisors, such as requirements to report the trainee's progress to the Board of Education and Assessment, are described in the *RCPA Induction Manual for Supervisors* and the RCPA policy on the *Role of the Supervisor*. Please refer to these documents for detailed information.

ASSESSMENT

Trainees in both the single and joint discipline pathways undertake the same examinations, which are solely under the control of the RCPA Board of Education and Assessment.

Assessment is by formal examination and by submission of a portfolio, which is a record of workplace-based assessment and other achievements during training. The periodic and annual supervisor reports are also kept in the portfolio. The requirements are summarised below.

Examinations

Basic Pathological Sciences examination, usually taken before or during the first year of training. All trainees are required to undertake (or apply for exemption from) the Basic Pathological Sciences examination. Joint trainees who register from 2020 will not be automatically exempt from the RCPA Basic Pathological Sciences examination. This will include joint New Zealand trainees who register in December 2019 and any joint trainees who have delayed registering with the RCPA until 2020.

- See **Appendix 2** for detailed requirements.
- The Haematology Part I examination, with written, practical and structured oral components. This examination may be taken by RCPA single discipline trainees during or after their third year of training, or by Joint RACP/RCPA trainees who have completed a minimum aggregate of 18 months of accredited laboratory training at the time of the examination. See **Appendix 3** for detailed requirements.
- The Haematology Part II examination consists of a structured oral component. This examination may not be attempted until the final year of approved training. See **Appendix 4** for detailed requirements.

All durations refer to full-time training or part-time equivalent training in an accredited laboratory. Trainees who have submitted an examination application form and are subsequently found not to be eligible to sit an examination/s, eg insufficient accredited training time, will be withdrawn from the examination/s. The trainee will be eligible for a full refund of the examination fee.

Supervisor Reports

Single discipline and joint trainees should submit different supervisor report forms. **Single discipline trainees** should complete a form for each year of training with additional reports for periods of rotation. The reports should be kept in the portfolio. **Joint Trainees** should use the RACP-RCPA form and follow the guidelines on the back page. See **Appendix 5** for detailed requirements

Portfolio

The **portfolio** consists of documents, including the dissertation, that provide evidence that trainees have successfully completed a range of activities that form part of their daily work in the laboratory. The portfolio records the trainee's progress in developing technical skills and professional values, attitudes and behaviours that are not readily assessed by formal examinations.

Trainees are responsible for initiating and negotiating a convenient time for the work-based assessments with a suitably qualified assessor. Trainees should provide the appropriate forms and ensure that they have completed the required number by the required dates. Assessments should be able to be done regularly without significant disruption to workplace productivity.

It is **important** to see the detailed portfolio requirements in **Appendix 6**.

LEARNING RESOURCES

Relevant text books, journals and weblinks are listed in [Haematology](#) section of the RCPA website. In addition, trainees should consult other peer-reviewed resources as necessary for comprehensive haematology coverage, especially contemporary reviews and key papers in the general haematology literature.

Section 2

LEARNING OUTCOMES AND RECOMMENDED TRAINING ACTIVITIES

In Section 2 of the Handbook, the four broad functions of the Haematologist are elaborated as sets of training outcomes and suggested training activities.

Trainees are not expected to do every activity in the list. They should use their judgment to select those that are most likely to achieve the outcomes, being mindful of the range of learning opportunities offered by their particular laboratory. Familiarity with new and emerging topics that may not appear in the Handbook is also expected.

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Where possible the learning outcomes are denoted as:

[E] to be achieved early in training or

[A] to be achieved at a more advanced level

Competence in outcomes achieved early in training should be maintained throughout.

1 DISCIPLINE-SPECIFIC FUNCTIONS AS MEDICAL SPECIALIST IN THE LABORATORY

As a medical specialist in the laboratory, experienced haematologists use their expertise in cytopathology histopathology, selection and use of ancillary tests such as flow cytometry and molecular and cytogenetics, interpretation of coagulation and haemoglobin and other special studies in the diagnosis and management of patients with haematological and other disorders. They also provide guidance to clinicians about appropriate and safe pre-transfusion testing and selection of blood products for transfusion and clinical advice regarding transfusion complications. They offer expert opinion to clinicians as to the rational choice, interpretation and potential limitations of haematological testing. They have expertise in laboratory procedures for accessioning, management and processing of specimens, to ensure that accurate and high-quality material is available for the formulation of diagnostic opinions. They advise and work with scientific staff in relation to laboratory procedures. They manage the haematology laboratory, being mindful of the need for appropriate and cost-effective ordering of investigations, quality assurance and safety. They guide and teach medical and other trainees in the discipline of haematology. The clinical haematologist provides a comprehensive approach to the diagnosis, prognosis and management of patients with primary haematological disorders and consultative opinion/support for patients whose other medical conditions/therapy affect the haematopoietic/vascular system.

By the end of training, trainees are not expected to have developed expertise in all these areas. However, they should be technically fully knowledgeable and competent in the routine aspects of the investigation and management of haematological problems. They should also have observed and reflected on the way senior haematologists fulfil the role of medical specialist in the laboratory and have participated in the more demanding aspects of the role as appropriate for the stage of training, assuming increasing levels of responsibility as they progress. They also should know how to access experts in all these areas and consider where their own interests lie and need to be developed to provide a value-added clinical service in their areas of practice.

The following lists of learning outcomes and activities are a guide as to what trainees should have achieved by the end of training.

1.1 Foundation knowledge

Outcomes

- [E] Understand the anatomy, physiology, biochemistry and molecular biology of the cellular and protein elements of blood and of the haematopoietic, lymphatic, vascular and reticuloendothelial systems;
- [E] Understand the pathophysiology of haematological and related disorders.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Review and be aware of appropriate contemporaneous literature relating to the underlying pathophysiologic basis of haematological disease.

1.2 Pre-accession interactions with referring clinician or patient

Outcomes

- [E] Use expert knowledge of the value of laboratory investigations in different disease states, advise clinicians on the appropriate choice and selection of tests and samples, their relative diagnostic strengths and the limitations of any proposed investigation.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Provide advice to requesting clinicians (e.g. incoming phone calls) in relation to test selection in conjunction with other haematologists.

1.3 Selection, Accession, Management and Processing of Specimens

Outcomes

- [E] With reference to the relevant laboratory procedures manual, apply the principles of:
 - appropriate receipt, integrity and validation of specimens in the laboratory;
 - specimen identification and laboratory accession;
 - appropriate specimen transport, handling, storage, retention and disposal.
- [E] Apply laboratory-specified work flow procedures to routine, urgent and out-of-hours work and determine whether they are optimal;
- [E] Select appropriate samples for integrity and intended assay;
- [E] Formulate contingency plans and laboratory backup procedures.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Work in specimen reception area;
- Evaluate turn-around times in time critical tests eg, activated partial thromboplastin time (APTT), identifying any source of non-compliance;
- Monitor and manage non-conforming samples, including measures to reduce these (esp. where due to patient identification problems);
- Evaluate different testing selection and technologies;
- Attend laboratory management meetings to participate in specimen/workflow discussions.

1.4 Use of laboratory instruments and equipment

Outcomes

- [E] Select automated test methods with reference to the requirements specified in List A in Appendix 1;
- [E] Apply the techniques and equipment specified in List B in Appendix 1;
- [E] Understand how to carry out stock control of reagents and other inventory;
- [E] Understand how to prepare reagents;
- [E] Use the laboratory information system for recording, reporting and backing up.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Work in the automated area under appropriate scientific supervision;
- Review QA/QC with senior scientists and pathologists;
- Observe activities related to stock control of reagents and other inventory;
- Observe the preparation of reagents.

1.5 Technical skills

Outcomes

- [E] Prepare, examine, describe and interpret blood and marrow films prepared by the techniques specified in List C in Appendix 1;
- [E] Select, perform and interpret routine and special stains, and detect and correct errors in these processes;
- [E] Interpret and perform procedures and laboratory tests specified, but not limited to, those in List C in Appendix 1:
 - Phenotype studies
 - Morphology
 - Immunophenotyping or flow cytometry

- Genotype studies
 - Cytogenetics
 - Molecular genetics
 - Erythrocyte studies
 - Haemolysis studies
 - Coagulation studies
 - Blood transfusion studies
 - Paediatric studies
 - Other studies.
- [E] Record microscopy images for retention for teaching, publication, etc;
- [E] In relation to transfusion, identify issues related to:
- donor and recipient and pre transfusion testing;
 - donation/storage/transport/ issues;
 - Indications for blood products (including special requirements for modified components, such as irradiation);
 - Specification of blood products;
 - Complications of transfusion;
 - Laboratory testing, reporting and documentation;
 - Hospital and national/regional haemovigilance activities
- [E] Monitor the efficacy of transfusion;
- [E] Provide clinical advice on the appropriate selection of blood and blood products and their administration;
- [E] Perform blood transfusion studies specified in List C in Appendix 1;
- [E] Interpret blood bank results;
- [E] Recognise, investigate and manage transfusion reactions and other transfusion related adverse events;
- [E] Provide clinical advice and liaison to provide support for urgent or complex transfusion requirements;
- [E] Collect adequate bone marrow specimens safely for microscopic review and appropriate ancillary studies.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Perform daily laboratory duties;
- Select and present slides to clinicians;
- Prepare materials for teaching undergraduates and scientists;
- Answer transfusion related queries from clinician and scientists;
- Instigate and investigate transfusion reactions and prepare reports;
- Perform all tests, including training exercises at Red Cross Blood Service or other relevant laboratories;
- Attend and contribute to Transfusion Committee meetings;
- Perform transfusion exercises set within the laboratory;
- Perform bone marrow biopsy procedures according to relevant policies/procedures, including obtaining informed consent, completing relevant resuscitation training, pre-procedure risk assessment and recognition/management of post-procedure complications.

1.6 Clinical Procedures (see above for BM 1.5)

Outcomes

- [E] Perform sterile procedures including bone marrow aspiration, trephine biopsies, cannulation and phlebotomy (including therapeutic venesection) with due consideration of:
- the individual patient's condition and clinical history
 - benefits and potential risks
 - clinical indications
 - informed consent
 - resuscitation procedures.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Satisfactory performance at CPR teaching/accreditation sessions;
- Visit outpatient areas to learn appropriate venepuncture/venesection practice.

1.7 Production, analysis and reporting of laboratory data

Outcomes

- [E] Record, verify, interpret and report laboratory test results, in accordance with laboratory procedures;
- [E] Identify potential causes of variation in clinical and non-clinical results;
- [E] Demonstrate a detailed appreciation of test limitations when reporting results;
- [E] Explain the use of the laboratory information management system (LIMS) to develop and apply algorithms and rules for the production of results, interpretative comments and recommendations for further tests and alerts for non-routine action;
- [E] Use the LIMS to develop algorithms for reporting; prepare algorithms for investigation of different clinical scenarios;
- [E] Apply the principles of action limits with regard to their development, application in the laboratory and notification of abnormal/critical results to pathologists and/or requesting clinicians;
- [E] Understand statistical concepts, methods and tools used to assess the accuracy, uncertainty, variation and reproducibility of test results, including data for both individual patients and populations, and to be able to determine confidence levels, reference or expected values and the clinical significance of testing.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Participate in laboratory duties including management/technical/review meetings;
- Review test procedures and prepare a report with recommendations for future local usage based on literature review and analysis of all methods and data including specificity, sensitivity and predictive values;
- Review causes of variation;
- Review action limits, documentation and compliance;
- Review departmental list of tests and define appropriate QC/reporting.

1.8 Storage and Retrieval of Laboratory Data

Outcomes

- [E] Explain the principles and procedures of specimen storage, as set out in NATA/RCPA, IANZ, ISO or other relevant requirements;
- [E] Use laboratory information systems in recording patient and request information, including a storage and retrieval system for specimens, results, comments and final reporting;
- [E] Conform to specimen indexation conventions of the laboratory and use laboratory information systems to retrieve reports/specimens for examination and review to satisfy clinical audit and/or research purposes.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Study guidelines and local practice for monitoring documentation for NATA-ISO assessment;
- Retrieve specimens showing examples of specific diseases or processes for examination and review;
- Use the LIMS to retrieve reports for clinical review;
- Critically review recent reports for any compliance irregularities;
- Prepare a report on storage systems.

1.9 Developing and communicating an opinion; consultative skills

Outcomes

- [E] On the basis of all the information available in relation to a specific case, develop and record a professional opinion as to the nature, causation, severity, likely sequelae, etc, of the pathological processes;
- [E] Construct and sign off written reports which contain all appropriate diagnostic information, inferences and recommendations to the requesting clinician in a timely fashion;
- [E] Use department procedures to ensure that important results are conveyed to appropriate clinicians and extra testing is performed if indicated;
- [E] Recommend and use standardised information structures, terminology and units for requesting and reporting, e.g. use of formal terminologies;
- [A] Explain evidence-based advice, guideline development, prediction and research, and describe the knowledge and information tools that can be used to help with this.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Prepare consultative reports under supervision;
- Perform daily laboratory and supervised on-call duties;
- Telephone clinicians with recommendations for further investigation;
- Contribute appropriately to grand rounds, clinicopathological conferences, morbidity and mortality reviews, quality and audit committees and other similar meetings.

1.10 Monitoring Patient Progress

Outcomes

- [E] Where laboratory results suggest developing disease, appropriately monitor patient progress using direct visit or surveillance via the LIMS, so as to advise clinicians when further specific testing may be warranted, or when a specific diagnosis becomes apparent;
- [E] Where appropriate, follow up patient outcomes by consultation with clinicians in hospital and general practice.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Follow up of patients;
- Ringing of abnormal/critical results and interpretation/suggested action where applicable;
- Participate in supervised after hours on call roster.

2 FUNCTIONS OF THE PATHOLOGIST AS MANAGER IN THE LABORATORY

As managers in the laboratory, experienced haematologists apply clinical information to cost effectively manage a haematology laboratory safely and effectively in the context of finite resources. They work effectively and constructively with scientific and administrative staff. They observe occupational health and safety protocols in all aspects of the accession, management and processing of specimens. They ensure effective work practices through staffing and by developing policies and procedures based on appropriate use of information and evidence. They ensure that their local haematology practice is driven by up to date relevant national/international guidelines and they identify matters that are reportable to the Coroner and other agencies. They demonstrate leadership in their organisation to promote safe and timely patient care. They detect and correct technical and other errors and artefacts in all processes concerned with the accession, management and processing of specimens and in other areas of laboratory practice.

By the end of training, trainees are not expected to be fully competent in all these areas, however they are expected to have become familiar with managerial tasks by observing and reflecting on the duties of senior haematologists and to have participated in managerial activities that are appropriate for their stage of training, assuming increasing levels of responsibility as they progress.

The following lists of learning outcomes and suggested activities are a guide as to what trainees should have achieved by the end of training.

2.1 Quality Management

Outcomes

- [E] Understand and use basic principles and applications of quality management in the laboratory, including policies, procedures etc;
- [E] Be familiar with governance requirements in relation to quality systems;
- [E] Apply pre-analytical quality control procedures to sample handling, including collection, identification, acceptance, storage and disposal;
- [E] Apply internal quality control procedures, including reference ranges and applications - principles and usage of SI units;
- [E] Be familiar with basic statistics as applied to quality control;
- [E] Understand the measurement of uncertainty;
- [E] Apply external quality assurance procedures, including laboratory accreditation as specified by NATA/RCPA, IANZ, ISO or other relevant body;
- [E] Be familiar with procedures for adverse reaction reporting;
- [E] Participate in audit and quality improvement;
- [E] On the basis of current evidence, participate in the regular review and replace tests in use or introduction of new tests.
- [E] Promote timely and appropriate use of pathology investigations;
- [E] Document, notify and apply corrective actions, employing laboratory information systems where appropriate, in the event of incidents, errors and adverse events;
- [A] Apply, review and plan quality assurance strategies for monitoring processes and outputs in the laboratory.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Review summaries of relevant requirements for laboratory accreditation and performance, for example the NATA Checklist for Laboratory Accreditation and the requirements of other relevant bodies, such as IANZ, ISO;
- Participate in case/slide reviews, peer review meetings, external quality assurance (e.g. RCPA QAP) and continuing professional development activities;

- Be familiar with current thinking regarding QC strategies, risk management, informatics and evidence based medicine in laboratories;
- Participate in workflow checks to ensure effective and efficient laboratory function;
- Recognise, report and analyse quality problems when they arise in the laboratory;
- Participate in the implementation of a plan for testing and evaluating new technology or advances that may improve the quality of laboratory practice and patient care.
- Complete the [Quality Management eLearning module](#) in RCPA Education Online and print the certificate of completion for your portfolio.

2.2 Laboratory Safety

Outcomes

- [E] Apply laboratory safety procedures, to protect self and staff against chemical, physical, microbiological, radiation and fire hazards;
- [E] Be familiar with and act in accordance with internal and external disaster management plans;
- [E] Be familiar with laboratory safety documentation.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Participate in orientation program for new staff members;
- Schedule meeting with WHS and Quality Officers;
- Participate in drills and meetings where occupational health and safety issues are addressed;
- Locate and ensure ability to use equipment for biological, chemical and fire safety, first aid and resuscitation;
- Review incident reports if available.
- Complete the [Laboratory Safety eLearning module](#) in RCPA Education Online and print the certificate of completion for your portfolio.

2.3 Compliance with Legislation

Outcomes

- [E] Demonstrate basic knowledge of regulatory requirements of laboratory management, with regard to NATA, HIC or other relevant authorities;
- [E] Recognise the basic legal aspects of medical litigation and the potential role of haematologists as defendants or consultants in such action;
- [A] Identify acceptable standards of billing practice appropriate to the work setting.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Review or assess the laboratory as if a NATA or quality audit organisation inspector and identify any problem areas as part of a quality audit;
- Critically review the last audit assessment reports of your laboratory and identify any contentious issues;
- Attend unit management meetings;
- Document incidents and discussions that may have medico-legal implications and discuss with supervisor or a senior colleague.

2.4 Managing People

Outcomes

- [E] Review and use orientation and training protocols for new staff;
- [E] Be familiar with organisational policies relating to human resources management;
- [E] Be familiar with the RCPA policy on bullying and harassment. Refer to Appendix 1 of the RCPA Trainee Handbook - Administrative Requirements;
- [E] Identify techniques to provide constructive feedback to staff;

- [E] Identify principles of conflict resolution in the workplace.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Participate in human resources management as directed by the Head of Department;
- Observe administrative procedures in relation to selection and appointment of staff;
- Reflect on observation of interactions in the workplace;
- Participate in conflict resolution course or read articles on the subject;
- Senior trainees assist in the orientation and mentoring of junior trainees.
- Complete the six (6) [Ethics eLearning modules](#) in RCPA Education Online (mandatory). Complete relevant activities from the [Monash University Clinical Ethics Resource](#) (optional).

2.5 Managing resources

Outcomes

- [A] Describe issues concerned with the assessment, procurement, installation, maintenance and use of laboratory equipment and electronic information systems in the laboratory; environment, and evaluate cost-effectiveness;
- [A] Locate sources of pathology financing information, e.g. Medicare Benefits Schedule.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Take part in drawing up an annual department budget and identifying the fixed, variable and discretionary costs.
- Complete the [Quality Management eLearning module](#) in RCPA Education Online and print the certificate of completion for your portfolio.

2.6 Information fundamentals

Outcomes

- [E] Understand statistical concepts, methods and tools used to assess the accuracy, uncertainty, variation and reproducibility of test results, including data for both individual patients and populations, and to be able to determine confidence levels, reference or expected values and the clinical significance of testing.
- [E] Understand the role and scope of informatics in laboratory medicine, including concepts of information architecture, quality and analysis, systems design, and specialised sub-domains such as bioinformatics, imaging and statistics
- [E] Explain the basics of laboratory systems architecture and the movement of data for communication of requests, reports and instrument interfacing
- [E] Identify the information technology environment in which the laboratory information system operates, including integrated systems (i.e. hospital information systems, back-ups, reporting and network structure
- [E] Describe meaningful and secure use of electronic health records in pathology practice

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Access and read documents and view video presentations relating to informatics to be found in RCPA Education Online
- Participate in departmental and clinical meetings;
- Network and share information with colleagues;;
- Plan, organise, review teaching activities, together with supervisor, peers and laboratory staff;
- Participate in College activities and meetings.

3 RESEARCH AND SCHOLARSHIP

Experienced haematologists demonstrate and promote professional behaviour and attitudes at all times, being responsible and accountable to patients, colleagues and the community. They maintain professional competence throughout their career by commitment to continuous learning and contribute to the body of knowledge and/or enhancement of practice in haematology.

By the end of training, trainees should be able to critically appraise scientific literature and research in haematology and be sufficiently skilled in scientific inquiry to conduct a small scale laboratory investigation or participate in a larger-scale research study. They should have developed the self-discipline to support the habit of lifelong self-education. Through personal experience and observation they should have sufficient understanding of effective teaching methods to be able to mentor and supervise junior staff and to conduct educational sessions for colleagues and for the general community.

The following lists of learning outcomes and suggested activities are a guide as to what trainees should have achieved by the end of training.

3.1 Research and critical appraisal

Outcomes

- [E] Critically appraise sources of medical information, discriminating between them in terms of their currency, format, authority and relevance;
- [E] Develop a personal strategy, using IT software where appropriate, to discover, store, access and share information resources;
- [E] Apply and interpret basic statistical and epidemiological concepts and data;
- [A] Demonstrate skill in developing a research proposal, conducting appropriate research activities and writing up for peer review/publication;
- [A] Comply with the requirements of relevant bodies concerned with ethics in human and animal research;
- [A] Prepare reports and papers for publication that comply with the conventions and guidelines for reporting biomedical research;
- [A] Contribute to data analysis and publication in the department.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Prepare dissertation proposal;
- Undertake at least one and preferably more projects under supervision and write up for submission for publication;
- Participate in and present cases, reviews and original work, to peers at grand rounds, specialist meetings, journal club, etc;
- Attend research meetings;
- Contribute to writing research proposals and ethics submissions;
- Use clinical and laboratory databases for research for collecting, organising and analysing data;
- Use a standard bibliographic application (e.g. EndNote) to download citations from a search and organise them into a personal database;
- Be familiar with basic statistical concepts including distribution, mean, median, standard deviation, statistical significance, confidence intervals, correlation, sensitivity, specificity, predictive values, incidence and prevalence;
- Seek expert medical librarian and statistical support where relevant;
- Use the [research and scholarship resources](#) in RCPA Education Online.

3.2 Undertaking Self-Education and Continuing Professional Development

Outcomes

- [E] Practice the habit of identifying and documenting own learning needs and planning educational strategies to meet them;
- [E] Identify own learning style, apply it to learning activities;
- [E] Plan, implement and monitor a personal continuing education strategy, including self-assessment activities;
- [A] Demonstrate up to date knowledge and ability to appraise medical/pathological literature.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Formulate a learning plan;
- Complete an online learning style inventory and explore a variety of ways to learn;
- Participate in clinical and pathology educational meetings and journal clubs;
- Apply various computer-based instructional tools, such as electronic tutorials for confirming or updating knowledge and skills;
- Review RCPA CPDP documentation to identify and apply activities and recording strategies that may be applicable;
- Continuously update curriculum vitae.

3.3 Educating Colleagues, Staff, Patients and Families

Outcomes

- [E] Employ effective oral, visual or written modes as appropriate to educate laboratory personnel, peers, medical students and other health professionals, incorporating the principles of adult learning;
- [A] Translate and convey pathology-related concepts and information to non-pathologists;
- [E] Participate in staff training to ensure that clinically significant results are identified and communicated in accordance with laboratory procedures;
- [E] Promote understanding of health and disease, including relevant epidemiology and public health issues, to patients, clinicians and the community;
- [A] Implement staff training to ensure that potential causes of laboratory error are identified;
- [A] Identify and record examples where training deficiencies lead to lab problems.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Participate in teaching, clinicopathological meetings and, conference presentations;
- Review literature on principles of adult learning;
- Prepare posters or educational articles of scientific investigations in pathology and present to peers and other health professionals;
- Facilitate patient education if relevant to discipline;
- Give seminars to scientific staff on the significance and consequences of clinical reporting.

3.4 Providing Data for Planning and Evaluation

Outcomes

- [E] Identify requirements for reporting clinical and laboratory information (e.g. pathology laboratory reporting to registries) and the provision of new services.
- [E] Identify requirements for planning acquisition and commissioning of new/replacement equipment;
- [A] Identify requirements for planning of new/additional laboratory testing/services.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg, Assemble clinical information to assist in health care service delivery.

4 PROFESSIONAL QUALITIES

Experienced haematologists in the laboratory have expertise in the appropriate use of pathology investigations to ensure timely and accurate patient diagnosis. They respect patient confidentiality and rights and conduct themselves in a professional manner at all times.

Trainees should reflect on and strive to adopt the attitudes and values that underpin professional practice and take advantage of opportunities to extend themselves in these areas so that by the end of training, they are fully able to assume their professional responsibilities.

The following lists of learning outcomes and suggested activities are a guide as to what trainees should have achieved by the end of training.

4.1 Ethics and Confidentiality

Outcomes

- [E] Practice ethically, which includes:
 - prompt reporting
 - interacting appropriately with clinicians, laboratory staff and other health professionals
 - knowing when to seek opinion from others;
- [E] Comply with legal, ethical and medical requirements relating to patient records and documentation, including confidentiality, informed consent and data security;
- [E] Differentiate between ethically appropriate and ethically inappropriate procedure;
- [E] Identify appropriate courses of action in regard to unprofessional conduct by or ill health in a colleague;
- [E] Comply with copyright and intellectual property rules;
- [E] Advocate for and protect patient rights.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Review appropriate literature and guidelines including the National Patient Safety Education Framework;
- Read the Code of Ethics of the Australian Medical Association or the New Zealand Medical Association.
- Complete the 6 [Ethics eLearning modules](#) in RCPA Education Online (mandatory). Complete relevant activities from the [Monash University Clinical Ethics Resource](#) (optional).

4.2 Communication

Outcomes

- [E] Employ effective oral, written and electronic communication strategies, including the production of concise, grammatically correct written reports;
- [E] Demonstrate good interpersonal communication skills such as active listening and giving and accepting appraisal;
- [E] Comply with guidelines for handling sensitive information;
- [E] Take into account clinicians' and patients' needs when advising clinicians on the choice and performance of laboratory procedures and the interpretation and relevance of pathological findings;
- [E] Communicate with other laboratory staff about testing methodologies, quality assurance techniques and delineating protocols for the issuing of results;
- [E] Communicate with other clinical specialists and pathologists on issues of patient care and professional practice and in seeking and providing referral opinion on difficult cases;
- [E] Communicate with patients and wider community on issues relating to laboratory medicine.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Participate in a communication and or presentation skills workshop;
- Compose written reports at an appropriate level of responsibility and seek feedback from supervisor, colleagues and clinicians;
- Document telephone communication of pathological findings, interpretations, clarification of requests and complaints where appropriate, seeking feedback from supervisors and colleagues.

4.3 Collaboration, respect for others' skills and teamwork

Outcomes

- [E] Demonstrate effective participation as a member of health care teams within the laboratory and the wider clinical setting;
- [E] Consult effectively with other medical practitioners and health care professionals and pathology informaticians;
- [E] Contribute effectively to other inter-disciplinary team activities, such as peer review sessions and other education and quality activities.

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Identify the roles of health care team members;
- Identify the elements of an effective team;
- Identify whether these elements exist in your team;
- Apply available technologies to share information and to network with colleagues;
- Plan and construct learning activities in collaboration with supervisor, peers and laboratory staff.

4.3 Cultural competence

Outcomes

- [E] Demonstrate an awareness of cultural diversity and the ability to function effectively, and respectfully, when working with and treating people of different cultural backgrounds. Diversity includes but is not limited to ethnicity, gender, spiritual beliefs, sexual orientation, lifestyle, beliefs, age, social status or perceived economic worth.
- [E] Apply knowledge of population health, including issues relating to health inequities and inequalities; diversity of cultural, spiritual and community values; and socio-economic and physical environment factors; to specialist pathology practice
- [E] Apply knowledge of the culture, spirituality and relationship to land of Aboriginal, Torres Strait Islander and/or Māori peoples to specialist pathology practice and advocacy

Activities

Select activities that are appropriate to your training environment and, if relevant, keep a record for your portfolio, eg,

- Access and read documents relating to cultural competence, including those concerning indigenous people, such as Aboriginal and Torres Strait Islander and Maori people
- Participate in departmental and clinical meetings;
- Network and share information with colleagues;;
- Plan, organise and review teaching activities, together with supervisor, peers and laboratory staff;
- Participate in mentoring programs;
- Participate in College activities and meetings;
- Complete the [Cultural Competence eLearning modules](#) in RCPA Education Online and print the email confirming satisfactory completion of the relevant module/s for your portfolio OR provide evidence of completion of cultural competence training provided by your employer, if a registered health services provider.

Section 3

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Appendix 1

Essential Topics in Haematology

List A: The following aspects must be considered when selecting automated test methods:

- performance
- quality control
- calibration set up, including the development of normal and therapeutic reference ranges
- trouble shooting
- training
- reagent usage
- waste disposal
- costs
- service issues
- maintenance
- record keeping.

List B: Awareness of the principles and clinical utility of the following techniques/equipment

- light microscopy
- phase contrast microscopy
- electron microscopy
- photo electric colorimeter
- automated cell counter
- automated staining machine
- automated or semi-automated coagulation instruments
- automated blood bank instruments
- techniques/equipment for blood transfusion testing
- electrophoresis (serum proteins, haemoglobin and for molecular studies)
- pH meter
- weighing machines
- centrifuge (including cytocentrifuge)
- spectrophotometer
- calibration and use of diluters and pipettes
- flow cytometry technologies
- immunoassays
- high pressure liquid chromatography
- instruments for molecular techniques
- refrigeration/cold chain equipment

List C: Technical procedures in Haematology

Phenotype Studies

Morphology

- Performance of sterile procedures including bone marrow aspiration, trephine biopsies, cannulation and phlebotomy, including therapeutic venesection, with due consideration of
 - the individual patient's condition and clinical history
 - clinical indications
 - benefits and potential risks
 - informed consent
 - resuscitation procedures
- Preparation of blood films
- Preparation of bone marrow aspirate films
- Staining of blood and bone marrow aspirate with Romanowsky stains
- Staining of blood and bone marrow for iron
- Staining of blood and bone marrow aspirate with myeloperoxidase, Sudan Black, PAS, specific esterase, non-specific esterase, acid and alkaline phosphatase stains
- Preparation of supravital stained blood films
- Differential count on blood and bone marrow aspirate films
- Preparation of comprehensive and systematic descriptive reports of blood films, bone marrow aspirate films and trephines, including relevant diagnostic features and interpretation, with summary and recommendations for appropriate further testing.
- Preparation and interpretation of thick and thin blood films for demonstration of malarial parasites
- Performance and interpretation of other malarial detection systems (eg immunochromatography test),
- Selection of blood films for review and/or retention according to laboratory guidelines
- Manual leucocyte count
- Manual platelet count, using phase contrast microscopy
- Calculation of red cell "absolute values"
- Haemoglobin estimation
- Spun micro-haematocrit
- Erythrocyte sedimentation rate

Immunophenotype or flow cytometry

- Acute leukaemia
- Lymphoproliferative disorders
- CD34 cells
- Paroxysmal nocturnal haemoglobinuria
- Platelet antibody studies
- DNA ploidy studies
- Feto-maternal haemorrhage
- Red cell membrane disorders

Genotype Studies

Cytogenetics

- Karyotyping
- Fluorescence In-Situ Hybridisation (FISH) studies

Molecular Genetics

- Nucleic acid preparation
- Restriction endonuclease analysis
- Southern, northern and western blotting
- Polymerase chain reaction, including quantitative estimation
- Gene sequencing
- Trainees are expected to demonstrate competence in the identification or exclusion of individual variants with known clinical implications. A single assay may identify one or several variants, where the pathogenicity and clinical utility of each variant is well established. Examples of typical clinical applications include:
 - Diagnosis of diseases managed by haematologists with limited allelic heterogeneity (e.g. sickle cell disease).
 - Pharmacogenetic variants of relevance to the management of haematological conditions (eg Factor V Leiden and other genomic variants relevant to DVT/PE)
 - Somatic “gain of function” variants (eg JAK2; FLT3 variants).
 - Detection of oncogenic fusion genes/ gene rearrangements (eg t(9;22) BCR-ABL1, t(15;17) PML-RARA; t(8;21) RUNX1T1-RUNX1).
- Other relevant techniques as applied to diagnosis

Erythrocyte Studies

- Serum iron, total iron binding capacity and ferritin measurements
- Soluble transferrin receptor studies
- Serum vitamin B12 assay and B12 binding, other relevant tests to investigate for B12 deficiency
- Serum and red cell folate assays
- Schilling test
- Intrinsic factor antibody measurement
- Red cell mass / plasma volume
- Erythropoietin measurement
- Genotype testing for haemochromatosis

Haemolysis Studies

- Reticulocyte count – manual and automated
- Heinz body preparation
- Examination of urine for haemosiderin, differentiation between haemoglobinuria, myoglobinuria, and haematuria
- Screening tests for glucose 6-phosphate dehydrogenase (G6PD) and other enzyme deficiencies
- Tests for red cell membrane disorders, including osmotic fragility, autohaemolysis and acidified serum test
- Tests for paroxysmal nocturnal haemoglobinuria
- Cold agglutinin titre, thermal amplitude, i/I specificity
- Tests for haemoglobin stability, including heat and isopropanol precipitation test
- Haemoglobin electrophoresis as assessed by cellulose acetate electrophoresis and quantitation by acid elution method or high performance liquid chromatography assay
- Quantitative assessment of foetal haemoglobin
- Tests for haemoglobinopathies/thalassaemia, including haemoglobin electrophoresis, quantitative assessment of foetal haemoglobin, HbA2 assay, tests for HbS
- Quantitative assays for red cell enzymes
- Donath-Landsteiner test

- Tests for methaemoglobin and sulphaemoglobin
- Plasma haptoglobin measurement
- Oxygen dissociation curve measurement (P50)

Coagulation Studies

- Coagulation testing using point-of-care instrumentation
- Prothrombin time and International Normalised Ratio
- Activated partial thromboplastin time
- Thrombin time, heparin reversal and reptilase
- Anti-Xa assay
- Coagulation factor assays and inhibitor studies
- Echis time
- Plasma fibrinogen measurement
- Fibrinogen degradation products and cross-linked fibrin assays
- D-dimer assays
- Platelet aggregation studies
- von Willebrand factor studies
- Protein C, Protein S, Antithrombin assays
- Antiphospholipid antibody testing (eg. Lupus anticoagulant, anticardiolipin antibodies)
- Euglobulin clot lysis time
- Tests for heparin associated thrombocytopenia
- Molecular testing, (eg. Factor V Leiden, prothrombin G20101A gene mutation, methyl tetrahydrofolate reductase)
- Plasma homocysteine
- Test interpretation of effects of new anticoagulants eg dabigatran, etc

Blood Transfusion Studies

- Blood grouping and antibody screening by manual, semi-automated and automated techniques
- Red cell phenotyping
- Antibody detection, identification and titre
- Direct antiglobulin test using “broad spectrum” and mono specific reagents
- Indirect antiglobulin test using “broad spectrum” and mono specific reagents
- Elution of antibodies from red cells
- Auto and allo-antibody absorption
- Cross-matching procedures
- Antenatal serology
- Methods for detection of white cell and platelet antibodies
- Histocompatibility testing, including tests for selection of donors for transplantation
- Tests for Hepatitis B, Hepatitis C, human immunodeficiency virus (HIV) detection and other transfusion transmissible diseases
- Selection and preparation of blood components for transfusion purposes
- Transfusion reaction studies
- HLA antibody testing

Paediatric Studies

- Practical and theoretical differences to laboratory management and technical procedures when dealing with neonatal and paediatric samples. This includes:
 - Understanding the significance of age related reference ranges
 - Small volume sample integrity and sample processing
 - Cross-matching/provision of blood products for neonates
 - Differing significance of morphological features in paediatric blood films compared to adults.
- Be able to apply the appropriate diagnostic investigations, from those listed, to specific circumstances in neonates and children. For example:
 - Neonatal jaundice

- T- activation
- Haemolysis in children
- Megaloblastosis of infancy
- The “bleeding child”
- Childhood leukaemia
- Anaemia during infancy

Obstetric Studies

- Be aware of the alteration observed through pregnancy in reference ranges of haematology tests including peripheral blood indices, coagulation tests and Vitamin B12 levels
- Be able to advise on
 - transfusion requirements of pregnant women
 - allo-antibody detection and significance (red cells & platelets) including principles of prophylaxis/management of haemolytic disease of the newborn
 - Intra-uterine blood sampling
 - Prevention of haemolytic disease of the newborn
 - Antenatal testing (eg for haemoglobinopathies) including chorionic villus sampling and amniocentesis
 - Principles of genetic counselling as related to hematologic disease
 - Be familiar with the laboratory aspects of pregnancy related conditions including
 - Hypercoagulability
 - Thrombocytopenia, including pre-eclampsia and haemolysis elevated liver enzymes and low platelets syndrome (HELLP)
 - Recurrent fetal loss

Other Studies

- Immunoelectrophoresis and immunofixation of serum and urine proteins
- Cryoglobulin and cryofibrinogen detection
- Viscosity measurements
- B2 microglobulin
- Serum lysozyme measurement
- Infectious mononucleosis (Epstein Barr virus) and other common viral testing
- Tdt (Terminal deoxynucleotidyl transferase) assays
- Red cell survival and platelet survival studies
- Bone marrow colony assays
- Labelling indices – plasma cell and other

Appendix 2

Basic Pathological Sciences Examination

All trainees must pass or be [exempted](#) from the Basic Pathological Sciences examination. Joint trainees who register from 2020 will not be automatically exempt from the RCPA Basic Pathological Sciences examination. This will include joint New Zealand trainees who register in December 2019 and any joint trainees who have delayed registering with the RCPA until 2020. The examination may be taken before commencement of training and is open to registered trainees as well as any medical graduate or medical student.

Although a pass in Basic Pathological Sciences is not a prerequisite for attempting Part I examination, a pass or exemption must be achieved before proceeding to sit the Part II examination.

The purpose of the Basic Pathological Sciences Examination is to assess familiarity with the most important pathological processes and biological principles of disease that form essential knowledge for any medical graduate who considers a career in the pathological disciplines.

The examination has become necessary because pathology may no longer be taught as a “core” discipline in some Australasian medical schools, hence an understanding of basic patho-biological processes is no longer guaranteed in many medical graduates. Such knowledge is essential for a successful start and satisfactory progress in the training program.

Examination Format and Content

The examination is a single 2.5 hour paper of 100 one-best-answer multiple choice questions, based on the [BPS syllabus](#) on the RCPA website.

The syllabus reflects knowledge that appears in current, authoritative texts as well as newer knowledge that may not yet appear in text books.

The topics cover the basic mechanisms of disease that trainees need to understand so they are equipped to train in their chosen discipline and to understand pathology disciplines other than their own chosen field. To cite just a few examples, the microbiology trainee needs to know what a septic infarct looks like; the chemical pathology trainee needs to know about the anatomical pathology changes seen in metabolic syndrome; the anatomical pathology trainee needs to understand why certain antibodies are used in routine diagnosis and the genetic pathology trainee needs to understand how enzyme deficiencies may lead to morphological changes.

The syllabus is primarily based on Chapters 1-11 of the Professional Edition of Robbins and Cotran Pathologic Basis of Disease (9th ed. 2015. Elsevier) by Abul K. Abbas, Vinay Kumar, and Jon C. Aster. References to supplementary materials are also given, which explain details more clearly than the textbook or contain helpful diagrams. As much as possible these references are from Open Access journals, but for copyright reasons the actual articles are not able to be placed on the College website.

Appendix 3

Part I assessment

Assessment in Part I is by

- Formal examinations
- A portfolio of evidence of having participated in a sufficient number and type of work activities.
- Satisfactory progress (supervisor reports)

See assessment matrix in Appendix 9.

Examinations

Examinations are prepared in accordance with [RCPA Guideline 3/2015 Quality Framework for RCPA Examinations – Written, Practical and Oral](#).

Part I assessment tests the trainee's knowledge and comprehension in the following areas:

- Anatomy, physiology, biochemistry and molecular biology of the cellular and protein elements of blood and of the haematopoietic, lymphatic, vascular and reticuloendothelial systems;
- Pathophysiology of haematological and related disorders;
- Theoretical and practical knowledge of the full range of haematological laboratory investigations performed in and referred to a tertiary referral hospital or specialised testing laboratory;
- Laboratory organisation and management, laboratory safety, equipment selection and maintenance, quality control, assurance and improvement;
- Test selection and interpretation of laboratory data in relation to clinical problems;
- Transfusion medicine, including aspects of donor selection, blood product collection, preparation, storage and distribution, pre-transfusion testing, aspects of transfusion safety.

Trainees are expected to have considerable hands-on laboratory experience, exposure to problem solving in laboratory haematology, experience in setting up new methodologies and an understanding of quality systems. Examination in these aspects of haematology and transfusion medicine are central to the Part I examination. Trainees should ensure that they are at the centre of their work area's activities. Trainees who have spent most of their time studying books and observing laboratory haematology will rarely satisfy the examination requirements.

As well as detailed knowledge of mainstream haematology investigations, trainees also need knowledge of the principles and interpretation of tests performed in other laboratories of relevance to haematology practice. These include: methodologies in molecular biology, Immunopathology and biochemistry relevant to haematology such as cytogenetics, tissue typing, and haematology investigations in nuclear medicine (e.g. red cell mass, plasma volume, etc). Trainees are not expected to be fully-fledged consultants when interpreting data from these tests in relation to clinical problems, but they are expected to show a mature understanding of principles, application, interpretation and limitations of the tests and in their approach to clinical problems. Trainees should have an extensive understanding of the activities of a blood supply agency, including knowledge of screening, testing, product selection and preparation and supply issues. They should also have comprehension of clinical/laboratory liaison issues in transfusion safety including patient/specimen identification and diagnosis and management.

Part I examinations

The Part I examination may be taken by RCPA single discipline trainees after having completed at least 24 months full-time or equivalent part time training in an approved haematology laboratory. Joint trainees may sit the Part I examination after at least 18 months fulltime (or pro-rata part-time) training in an accredited haematology laboratory. The components of the examination provide a rigorous and comprehensive examination of a trainee's knowledge base and approach to solving problems in haematology and transfusion medicine.

Phase 1 is normally held in May/June at local venues and comprises:

- **Written paper** consists of 15 short answer questions covering all areas of haematopathology practice for patients of all ages, including malignancy, haemostasis/thrombosis, transfusion, management, quality assurance and new and emerging concepts and technologies.
- **Haematological morphology examination** of 16 cases including peripheral blood (PB) and bone marrow (BM) aspirate smears and trephine sections and, on occasion, commonly used “special” stains. Material examined includes a variety of common benign (including reactive) and malignant haematological disorders, acute leukaemias, lympho-proliferative disorders, myeloproliferative neoplasms, myelodysplasias, plasma cell dyscrasias, haematinic deficiencies, reactive changes including certain infections (e.g. malaria), quantitative cell changes (including immune and reactive changes), congenital and acquired haemolytic disorders, haemoglobinopathies and thalassaemias, congenital/acquired qualitative cellular changes. Examples of common neonatal/paediatric diagnoses/conditions are also included.

Candidates are instructed to write a **concise**, systematic summary of the salient cytological or histopathological abnormalities, as would be provided to the requesting clinician, a focussed differential diagnosis and outline, a brief plan for further investigations which would rapidly confirm the true diagnosis.

Candidates must pass both Phase 1 examinations in order to be invited to proceed to Phase 2.

Phase 2 is held in August at a central venue and comprises:

- **“Dry” practical**, an open book examination of 8 questions. Candidates may bring reference information but no computers, phones or similar devices into the examination room.

Topics are chosen from all areas of haematology laboratory practice and generally cover clinical-laboratory liaison skills, data interpretation and reporting, including clinical scenarios with associated blood group/antibody screening, haemoglobin investigations, quality assurance exercises, data analysis, flow cytometry, cytogenetics/FISH, abnormal coagulation/haemostasis investigations.

- **Oral examination** with two 20 minute stations, each with a standardised set of questions covering a broad range of contemporary laboratory technical and scientific issues.

Candidates who fail one of the Phase 2 examinations but pass the other will **not** be required to re-sit the passed Phase 1 examinations and/or the passed Phase 2 examination if these exams were passed at a sufficiently high standard and if the failed examination is undertaken in the following year.

Portfolio of workplace activities and dissertation

The portfolio provides evidence that trainees have engaged in the appropriate number and type of work-based activities during training. It is strongly recommended that trainees begin these activities as soon as possible after commencing training. A list of items required for the portfolio is in **Appendix 6**. In brief, they are:

- The **dissertation**, which can be completed **at any time** during training. Detailed requirements including key dates are in **Appendix 7**.
- Work-based activities, which are completed throughout training. Detailed requirements are on the forms that must be used to record the activities, which are in **Appendix 8**.

At the periodic supervisor meetings, trainees must make available the forms for work-based activities and the portfolio summary spreadsheet (download from RCPA website). A print-out of this summary spreadsheet must be included as the front page of the portfolio. The supervisor should check the hard copy portfolio and summary spreadsheet for completeness before the Part I exam.

The summary spreadsheet will be reviewed by the Chief Examiner and the Registrar of the Board of Education and Assessment. The signatories and trainee may be contacted to confirm evidence of satisfactory completion.

The portfolio itself should not be sent to the College unless requested for audit.

Supervisor Reports

Trainees must submit a supervisor report annually for each year of training and for periods of rotation. Candidates for the Part I examination must submit an additional pre-examination supervisor report in the year of the examination. Append a print copy of the portfolio summary spreadsheet to the annual and pre-examination reports. Please refer to *RCPA Training Handbook – Administrative Requirements* (on the RCPA website) for the due dates for these reports.

Trainees are responsible for submitting the pre-examination supervisor report by the due date. Failure to do so may jeopardise the accreditation of training time or finalisation of exam results.

Submission of supervisor reports: Single discipline and joint trainees use different forms. Trainees should ensure that they use the appropriate form and follow the advice in **Appendix 5**.

Summary of assessment requirements for Part I

Item	Completion	Assessed by	Comments
Written paper	Normally in May/June. Single discipline – no earlier than Y3	Examiners ordinarily with at least 5 years post-Fellowship experience	
Morphology examination	Joint trainees - after 18 months aggregate accredited laboratory training		
Dry practical examination	Normally held in August. Invited to attend after release of Phase 1 results.	Examiners ordinarily with at least 5 years post-Fellowship experience	Open book examination
Oral examination			
Portfolio Items to be signed off by the supervisor or delegate	At the time of the pre-examination supervisor report.	Portfolio summary spreadsheet checked by BEA Registrar. If not satisfactory, the Candidate may be required to undertake further portfolio activities	Supervisor reviews hard copy portfolio for the pre-examination supervisor report. Random audit of the portfolio by Chief Examiner or delegate.
Supervisor reports: end-of-rotation, annual and pre-examination reports. Portfolio summary spreadsheet to be appended to annual and pre-exam reports	See RCPA website (single discipline trainees) or RACP website (joint discipline trainees) for submission dates.	Reviewed by BEA Registrar or Deputy Registrar and CJCT Coordinator	Referral to Chief Examiner if necessary. See Appendix 5

Assessment calendar

Please refer to the [RCPA Training Handbook – Administrative Requirements](#) on the RCPA website for key assessment dates.

Appendix 4

Part II assessment

Single discipline and joint trainees ordinarily sit the Part II examination in their final year of approved training. Trainees must have successfully completed (or have been exempted from) the RCPA Basic Pathological Sciences examination prior to sitting the Part II haematology examination.

Part II assesses the trainee's suitability as a consultant specialist in haematology and consists of

- An oral examination
- A portfolio of evidence of having participated in a sufficient number and type of activities
- Satisfactory progress (supervisor's) reports

See assessment matrix in Appendix 9.

Examinations are prepared in accordance with [RCPA Guideline 3/2015 Quality Framework for RCPA Examinations – Written, Practical and Oral](#).

Oral examination

Oral examination with two 15 minute stations, each with a standardised set of questions based on the "Functions of the Pathologist as a Manager in the Laboratory". It will not focus on test specific quality related matters which are intrinsic to, and examined in, Part I.

Portfolio of workplace activities and dissertation

The portfolio provides evidence that trainees have engaged in the appropriate number and type of work-based activities during training. A detailed summary of items required for the portfolio is in **Appendix 6**. In brief, they include;

- The **dissertation**, which can be completed at any time during training. Detailed requirements including key dates are in **Appendix 7**.
- **Work-based activities**, which are completed throughout training. Detailed requirements are on the forms that must be used to record the activities, which are in **Appendix 8**.

At the periodic supervisor meetings, trainees must make available the hard copy work-based activities forms and the portfolio summary spreadsheet. A print-out of this summary spreadsheet must be included as the front page of the portfolio.

The summary spreadsheet may be downloaded from the RCPA website.

The hard copy portfolio and summary spread sheet will be checked for completeness by the supervisor before the Part I examination. The summary spreadsheet will be reviewed by the Chief Examiner and the Registrar of the Board of Education and Assessment. The signatories and trainee may be contacted to confirm evidence of satisfactory completion.

The portfolio itself should not be sent to the College unless requested for audit.

Supervisor Reports

Trainees must submit a supervisor report annually and for each year of training, including periods of rotation. Candidates for the Part II examination must submit an additional pre-examination supervisor report in the year of the examination. Append a print copy of the portfolio summary spreadsheet to the annual and pre-examination reports. Please refer to *RCPA Training Handbook – Administrative Requirements* (on the RCPA website) for the due dates for these reports.

It is the trainee's responsibility to ensure that the pre-examination supervisor report is completed and submitted by the due date. Failure to do so may jeopardise the accreditation of training time or finalisation of examination results.

Submission of supervisor reports: Single Discipline and Joint Trainees should ensure that they use the appropriate form and follow the advice in **Appendix 5**.

Summary of assessment requirements for Part II

Item	Completion	Assessed by	Comments
Oral examination	Normally held in August	Examiners with at least 5 years post-Fellowship experience	
Portfolio Items to be signed off by the supervisor or delegate	At the time of the pre-examination supervisor report.	Portfolio summary spreadsheet checked for completeness by BEA Registrar. If not satisfactory, the candidate may be required to undertake further activities	Supervisor reviews the hard copy portfolio when preparing the pre-examination supervisor report. Random audit of the portfolio may be conducted by chief examiner or delegate.
Supervisor reports: end-of-rotation, annual and pre-examination reports. Portfolio summary spreadsheet to be appended to annual and pre-exam reports	See RCPA or RACP website for submission dates.	Reviewed by BEA Registrar or Deputy Registrar and CJCT Coordinator	Referral to Chief Examiner if necessary. See Appendix 5

Assessment calendar

Please refer to the [RCPA Training Handbook – Administrative Requirements](#) on the RCPA website for key assessment dates.

Appendix 5

Guidelines for completing the Supervisor Report Form

Please refer to the following documents:

- [Information about the role and responsibilities of supervisors and resources to support supervision](#)
- [The RCPA policy on the Supervision of Training and Accreditation of Supervisors](#)

The [supervisor report form](#) trainees should be completed by the supervisor in consultation with other pathologists and laboratory staff with a significant role in the trainee's training program and with reference to the trainee's portfolio. Single discipline and Joint Trainees use different forms.

Supervisors should be mindful that scoring trainee performance is of critical importance in early notification of underperforming trainees so that remedial action can be initiated early in training, if appropriate. Experience tells us that most trainees score 3, which indicates that they are performing at the expected level of training. A score of 1 or 2 identifies to the College/CJCT an underperforming trainee and flags the need for evaluation for trainee support pathways.

Trainees must make their up-to-date portfolio and logbooks available to the supervisor for the annual, rotational and pre-examination reviews. For the pre-examination review, a print-out of the portfolio summary spread sheet must also be made available.

The portfolio should include:

- Laboratory safety checklist
- Direct Observation of Practical Skills (DOPS) forms
- Case-based discussions (CbD) forms
- Process-based discussion (PbD) forms
- Microscopy and flow cytometry: supervisors will comment on the number and range of cases in the supervisor report. There are no specific forms for the portfolio for these investigations
- Log of attendance and presentation of cases/issues at meetings
- Log of teaching sessions.
- All Supervisor Reports
- Up-to-date portfolio summary spreadsheet

Submitting the Supervisor Report

It is the trainee's responsibility to ensure that the form is completed and submitted by the due date. At least one supervisor report is due annually for all trainees and may be submitted with the annual registration for the subsequent year. For trainees in rotational programs, one report is required for each period of rotation at a different institution and should be submitted at the end of the rotation.

For trainees sitting for Part I and Part II examinations, the pre-examination supervisor report is due by the date specified in the *RCPA Trainee Handbook – Administrative Requirements* (on the RCPA website). A print-out of the portfolio summary spread sheet must be appended to this report.

Joint Trainees should use the Joint RCPA-RACP Joint Trainee Supervisor Report form and follow the submission guidelines on the final page. The RCPA will accept the mid-year supervisor report as the pre-examination report. A print-out of the RCPA portfolio summary sheet must be appended.

Single Discipline Trainees should use the RCPA report form and post by the due date to:
The Royal College of Pathologists of Australasia
207 Albion Street
Surry Hills NSW 2010 AUSTRALIA

Faxed reports will not be accepted.

Appendix 6

Portfolio Requirements

The table below sets out guidelines to assist trainees to compile the portfolio and the portfolio summary. Portfolio activities to be carried out in the workplace and provide evidence that the trainee is developing technical skills and professional values, attitudes and behaviours that are not readily assessed by formal examinations.

Trainees should start accumulating evidence as early as possible in training and aim to have half of them underway or complete by the time they present for the Part I examination. Some activities must be completed every year; others must be completed by the due dates for the Part I or Part II pre-exam supervisor reports.

Appendix 8 contains the forms and logbook pages for recording the portfolio activities. Please file the hard copy forms in a **portfolio folder** with separate sections numbered as in the table.

A soft copy **portfolio summary** (Excel spreadsheet) should also be compiled so that trainees can keep track of what they have completed. The spreadsheet can be downloaded from the RCPA website. It is the trainee's responsibility to keep both hard and soft copy records **up-to-date**.

The supervisor should review and sign off completed portfolio forms and logbook on the annual, rotation and pre-exam supervisor report.

The portfolio summary spreadsheet should be appended to annual and pre-examination supervisor reports and will be reviewed by the Registrar, Board of Education and Assessment and the Chief Examiner. Signatories and trainees may be contacted to confirm evidence of satisfactory completion.

Note: The actual portfolio should not be sent unless requested for audit.

	Item	Part I	Part II	Evidence
1	Laboratory safety checklist; to be completed within 3 months of starting training	Complete as soon as practicable after commencing training.		Checklist – one required Certificate of completion of Laboratory Safety eLearning Module See point 10 below.
2	Supervisor report/s	For each year of laboratory training, end-of-rotation, annual and pre-examination reports. See RCPA website for submission dates.		See Supervisor Report Guidelines Appendix 5
3	Dissertation proposal and dissertation	Submit proposal at commencement of year of training in which dissertation is planned to be submitted with supervisor sign-off before commencing dissertation. Final submission date for dissertation, if not submitted earlier, is 1 July in the final year of Fellowship training.		Supervisor Sign-off form Trainee and supervisor declarations Appendix 7
4	DOPS A total of two (2) to be assessed as satisfactory.	Single discipline and joint trainees Bone marrow biopsy DOPS in Year 1 Practical transfusion serology DOPS.		DOPS forms for • Bone marrow biopsy • Practical transfusion serology Sign off by supervisor or other appropriately qualified person. Appendix 8

	Item	Part I	Part II	Evidence
5	CbD RCPA single discipline trainees Total of five during training, Note two cases are mandatory.	3 different cases to be completed satisfactorily before Part I	2 more to be completed satisfactorily before Part II.	CbD forms Signed as satisfactory by supervisor or other appropriately qualified person. Appendix 8
	CbD - Joint trainees	Single discipline and joint trainees A minimum of 3 laboratory-based CbDs during the laboratory training years.		
6	PbD	One PbD on receipt, storage of blood products/inventory management		PbD forms Signed as satisfactory by supervisor or other appropriately qualified person. Appendix 8
7	Microscopy	No specific requirements for the number and range of these investigations which trainees are expected to perform as part of their routine laboratory work.		Supervisor report
8	Flow cytometry			Supervisor report
9	Meetings Log meetings and case presentations	At least 50% of available meetings per week should be logged and signed off to verify the trainee's participation. Trainee must have presented cases at a minimum of four (4) of these meetings per year.		Meetings log Appendix 8 Trainees should also keep a list of cases/entities presented at each meeting.
10	Teaching sessions Log teaching sessions conducted for students, laboratory colleagues or other audiences.	No minimum number Teaching sessions that the trainee has conducted should be recorded in the logbook and signed off by supervisor at the periodic supervisor's meetings and at the end-of-year formal review.		Teaching Sessions Log Appendix 8
11	Professional qualities eLearning modules Refer to Section 2 Learning outcomes and recommended training activities for weblinks	The following RCPA e-learning modules are required to be completed during training: Quality Management Laboratory Safety Ethics (6 modules) Cultural Competence		A certificate or email verifying completion can be printed when the module has been completed Note: A cultural competence certificate issued by a recognised health service provider can substitute for the RCPA cultural competence module certificate.

Note transition arrangements:

The CbD on massive transfusion and the PbD on blood products/inventory management are mandatory except for trainees in their final year in 2019.

Appendix 7

Dissertation proposal and dissertation

The guidelines and forms for the dissertation proposal and dissertation are contained in this **Appendix**.

Dissertation proposal

Before starting work on the dissertation, a written proposal must be prepared in consultation with and signed by the supervisor. If there is any uncertainty about the suitability of the topic, please refer to the Chief Examiner for guidance.

An electronic version of the final proposal, signed by the supervisor, is to be submitted to the RCPA. Failure to submit the proposal may jeopardise acceptance of the dissertation.

- If you plan to submit the dissertation in the final year of training, the proposal should be submitted no later than one month after the closing date for enrolling to sit the RCPA Part II examination
- If you plan to submit your dissertation at another time during training, the proposal should be submitted to the RCPA at the commencement of the year of training or approximately six months before the planned dissertation submission date.

Email to bea@rcpa.edu.au with haematology dissertation proposal in the subject line.

Dissertation

The purpose of the dissertation is to introduce trainees to research, planning, critical analysis of the literature and to improve written scientific communication skills. The focus must be a haematology topic with a laboratory component, not necessarily lab-based, but with a plausible link to pathology. Clinicopathological research is acceptable; purely clinical research is not. The dissertation must be presented as a paper that is suitable for publication, with word count of approximately 3000-5000 words (including tables and figures but excluding references).

It can be

- a previously published paper for which the candidate is the primary author and the work was conducted during haematology training (the word count in this case is more flexible). Original research, reviews, guidelines, case series are acceptable, but letters to the editor or “brief communications” are not.
- a research project
- an audit report
- a systematic review
- guidelines/protocols/procedures developed by self for local implementation

Others who have contributed significantly to the work should be acknowledged as co-authors, as occurs in standard publications; minor contributors should be included in acknowledgments.

Manuscripts should adhere to the following strict criteria, which are similar to those required by major journals, (the following are adapted from JTH)

- In Adobe pdf format. It must be Adobe to allow appropriate plagiarism software to be used.
- Title page, including title of the paper, all authors and affiliations, address and contact details of the first author (the candidate), the word count of the abstract and of the main document (including tables / figures, but excluding references).
- Must include a structured abstract (max 250 words), including the headings Background, Objectives, Patients/Methods, Results, Conclusions.
- Must adhere to UK English and syntax.

- Abbreviations must be defined when first used.
- Maximum of 8 tables/figures (total, not each). Tables should be kept to a minimum, with only essential data to complement the text; tables should have a title, and, if necessary, a footer for abbreviations or explanatory text. Figures/illustrations should have a legend to permit the reader to comprehend the figure without reference to the text.
- Maximum of 75 references; should only be papers closely related to the author's work; should appear as a numbered list at the end of the manuscript and with numbers in square brackets in the text using Vancouver style.
- Use of a citation manager, eg Endnote, Reference Manager, is essential.

Dissertation marking criteria

The following criteria will be used by the examiners:

- Abstract: Concise summary of background, aims, method, results, conclusions.
- Introduction: Discussion of the literature and placement of the study in context.
- Aims of the research
- Methodology: Appropriate method, described in sufficient detail to allow the study to be replicated.
- Analysis: Quantitative or qualitative
- Results
- Discussion
 - Interpretation of results or critical analysis of literature
 - Placement of results in context of the available literature
 - Limitations of the study
- Format of the paper
 - Complies with criteria for presentation of the manuscript (above)
 - Reference List
 - Writing style syntax, spelling/ typographical errors
 - Graphs and Tables

Submitting the dissertation manuscript

Email the dissertation (Adobe pdf) to the RCPA. The forms that should be inserted at the front of the manuscript are all in this Appendix. They are:

- A self-assessment checklist
- Declarations by the supervisor and candidate
- A title page.

Two examiners will mark the dissertation independently, If considered not satisfactory, the Chief Examiner will request that the candidate discusses the examiners' comments with the supervisor. The candidate will be given a date for a revised dissertation to be submitted to the College.

Exemptions

Trainees who have already been awarded a PhD or MD by research in a topic of direct relevance to haematology may request exemption from submitting a dissertation. In this case, a copy of their thesis and/or publications arising from the research should be submitted.

Trainees currently enrolled in a PhD, MD or MPhil by research in a topic of direct relevance to haematology should submit the literature review they have prepared for their higher degree as an electronic (Word) document accompanied by the checklist, declarations and title page.

Address and date for submission

Due no later than 1 July in the final year of Fellowship training. Early submission is encouraged.

Electronic copy: email to bea@rcpa.edu.au with Haematology Dissertation in the subject line.

 <h1 style="margin: 0;">RCPA</h1> <p style="margin: 0;">The Royal College of Pathologists of Australasia</p>	<h2 style="margin: 0;">Haematology Dissertation proposal</h2>	
<p>How to use this form</p> <p>The purpose of the dissertation proposal is to enable your supervisor to ascertain whether your plan is feasible and whether the dissertation is likely to meet the expected standard. It is important to consult your supervisor when developing the proposal and to commence work only after receiving supervisor approval.</p> <p>The aim of the dissertation is to develop skills in research, planning, critical analysis and scientific communication skills. The dissertation must be in a format that is suitable for publication. Word count should be 3000-5000, including tables and figures but excluding references. The content should include a laboratory component, not necessarily lab-based but with a plausible link to pathology. Clinico-pathological research is acceptable; purely clinical research is not.</p> <p>DUE DATE: The dissertation proposal, signed by the supervisor, should be submitted to the RCPA no later than one month after the closing date for enrolling to sit for the RCPA Part II examination.</p>		
<p>Trainee name</p>	<p>RCPA ID</p>	<p>Stage of training</p> <p>Y1 Y2 Y3 Y4 Y5 if > Y5 please specify</p>
<p>Dissertation title</p>		
<p>Format of dissertation (please tick one or more as appropriate)</p> <p><input type="checkbox"/> a previously published paper for which the candidate is the primary author and the work was conducted during haematology training</p> <p><input type="checkbox"/> a research project</p> <p><input type="checkbox"/> an audit report</p> <p><input type="checkbox"/> a systematic review</p> <p><input type="checkbox"/> guidelines/protocols/procedures developed by self for local implementation</p>		
<p>Preliminary literature review – <i>please attach separate pages.</i></p> <p><i>This should be brief – just enough to summarise and evaluate current knowledge in the field and show why the topic is important.</i></p>		
<p>Methodology - <i>please attach separate pages.</i></p> <p><i>Outline and justify the method/s you propose to use. If you intend to collect data, specify the type of data, list the variables of interest and the method/s of analysis, including statistical methods. Include a detailed list of equipment and any other resources you will need.</i></p>		
<p>Ethics approval</p> <p><i>If ethics approval is needed, state the committee from which it will be obtained. Indicate how long this will take</i></p>		
<p>Schedule - <i>please attach separate pages.</i></p> <p><i>Include a dissertation schedule with target dates and a Gantt chart for each phase.</i></p>		
<p>Declaration by laboratory supervisor</p> <p>I hereby give approval for trainee Drto undertake the dissertation specified in this proposal.</p> <p>Supervisor name</p> <p>Supervisor signature and date</p>		
<p>Declaration by dissertation supervisor (if different to the laboratory supervisor)</p> <p>I hereby agree to supervise trainee Drwhile undertaking the dissertation specified in this proposal.</p> <p>Supervisor name</p> <p>Supervisor signature and date</p>		



Haematology
DISSERTATION check list

Please complete and attach this checklist as page 1 of the dissertation when submitting for examination.

Name of trainee.....RCPA ID.....

Name of laboratory supervisor.....

Name of dissertation supervisor (if not the laboratory supervisor).....

Laboratory.....Date submitted.....

Title of dissertation.....

.....

Format of dissertation (tick as appropriate)

- a previously published paper (candidate first author, work done during haematology training)
- a research project
- an audit report
- a systematic review
- guidelines/protocols/procedures developed by self for local implementation

Checklist (please complete)	
Manuscript in Word format	Y/ N
Word count excluding references (3000-5000)	
Abstract word count (<250)	
Abstract structured according to requirements	Y / N
Title page including all contributing authors	Y / N
Candidate is first author (also if previously published work)	Y / N
Total number of tables and figures (max 8)	
Total number of references	
Name of citation manager used	
Aim/Objectives, Patients/Methods, Results, Discussion, Conclusions clearly outlined	Y / N
Manuscript previously published? (must be <3 years ago)	Y/ N
Year in which majority of research was undertaken?	



Haematology
DISSERTATION declarations

Please complete and attach as page 2 of the dissertation when submitting for examination.

Declaration by supervisor

I certify that trainee Dr undertook this project during accredited training in haematology. I have reviewed this project report/dissertation and read the RCPA Dissertation Requirements. The dissertation is original and the work upon which it is based has not been used by any other trainee. I consider that the work is of publishable quality and is suitable for submission to the RCPA examiners.

Supervisor name

Supervisor signature **date**.....

Declaration by dissertation supervisor (if different from the laboratory supervisor)

I certify that trainee Dr undertook this dissertation during accredited training in haematology. The work is original and the work upon which it is based has not been used by any other trainee. I have reviewed this project report/dissertation and read the RCPA Dissertation Requirements. I consider that the work is of publishable quality and is suitable for submission to the RCPA examiners.

Supervisor name

Supervisor signature **date**.....

Declaration by trainee

I certify that I undertook this dissertation during my accredited training in haematology and that it satisfies the RCPA dissertation guidelines. The dissertation is original and the work upon which it is based has not been used by any other trainee. I have read and understand RCPA Policy 10/2002 - Plagiarism and Cheating in Examinations.

Trainee name

Trainee signature **date**.....



Haematology
DISSERTATION title page

Please complete and attach to as page 3 of the dissertation when submitting for examination.

Title of dissertation.....
.....

Names of all authors and affiliations

First author (candidate)
.....

Co-authors.....
.....
.....
.....

Address and contact details of first author (candidate)

.....
.....
.....

Word count of abstract.....

Word count of main document (including tables, figures; excluding references.....

Appendix 8

Portfolio forms and logbook pages

This Appendix contains master copies of forms and logbook pages to be used to record activities for the portfolio. Please make as many copies as you need and file the completed forms safely in the portfolio folder.

- Laboratory safety checklist
- DOPS form
- CbD form
- PbD form
- Attendance and presentation of cases/issues at meetings
- Teaching sessions

	<h2 style="margin: 0;">Laboratory Safety Checklist</h2>
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This form is designed to confirm that trainees have understood and are able to apply laboratory safety instruction provided by the employer as it relates to the RCPA curriculum. It covers the essentials for new trainees and is the basis for subsequent learning that will be assessed and eventually lead to the ability to function in a laboratory management role as a pathologist.

- I have participated in a laboratory safety induction program or educational session
- I have reviewed the laboratory safety manual
- I know where to find the laboratory safety equipment and how to use it
- I have known immunity to hepatitis B (natural or vaccine)
- I have been vaccinated and/or screened for other infectious diseases as required by my laboratory
- I know how and when to wash my hands and carry this out
- I wear enclosed shoes in the laboratory and tie back long hair if applicable
- I wear appropriate protective clothing (gown, gloves, goggles, mask as needed) and always remove it before leaving the laboratory
- I cover any cuts or wounds before working in the laboratory
- I never eat or put anything in my mouth whilst in the laboratory
- I know how to handle blood and other body substances and tissues to avoid transmission of infection to myself and others
- I know how to prevent sharps injury
- I am aware of electrical, chemical, radiation and biological hazards and how to prevent them
- I know what to do in an emergency
- I know the procedure for reporting safety-related incidents
- I know where to find information about legislative requirements for laboratory safety
- I know where to find detailed information about laboratory hazards such as dangerous chemicals
- I always clean up after myself
- I set up my workspace and ensure correct posture and lifting technique so as to avoid strain and injury

Trainee name (print)RCPA ID

Signature.....

Witness (supervisor or other senior member of staff):

Name (print) Signature.....

Date:.....

Directly Observed Practical Skills

The purpose of the Direct Observation of Practical Skills (DOPS) assessment is show that the trainee is able to work safely in the laboratory; and to provide feedback to the trainee about their progress by highlighting strengths and areas for improvement, thereby encouraging their professional development.

Trainees are required to complete DOPS forms to demonstrate competence in **different types** of techniques. Trainees should initiate the DOPS assessment by requesting an appropriate assessor to observe them when they are confident they can complete it satisfactorily.

DOPS forms must be completed for:

- Practical transfusion serology
- Bone marrow biopsy

It is important for the assessor to observe the trainee doing the entire activity. Observations can be made by the supervisor and also by other suitably qualified staff. Assessors who are RCPA Fellows can note this as a quality activity in their annual CPDP submission.

The assessor should complete the DOPS form while the trainee is present and spend 5-10 minutes providing immediate feedback.

Grading, standards and outcome of assessment

Each aspect of the trainee's performance should be graded in terms of whether or not it is as expected (or better than expected) for the stage of training. The "n/a" option should be used if the assessor has not observed that aspect or is otherwise unable to comment.

The trainee's strengths as well as areas for improvement should be discussed with the trainee. Feedback should be given sensitively and in a suitable environment. Areas for development should be identified, agreed and recorded on the DOPS form.

The final outcome should only be graded as consistent with the level of training if all aspects have been performed to the standard expected of a trainee at that stage. The standard should be such that the trainee would be able to perform the task safely without supervision, usually at the level of a competent junior scientist. A trainee whose performance falls below this level will be able to repeat the assessment with no penalty.

Record keeping

The DOPS forms must be fully completed, signed and dated by the trainee and the assessor. Only DOPS for which the trainee has met the standard need to be recorded in the portfolio.

 RCPA The Royal College of Pathologists of Australasia		Haematology DOPS form for Practical Transfusion Serology (DOPS = Directly Observed Practical Skill) This form is to be completed by the observer			
How to use this form The Practical Transfusion Serology DOPS must be observed by a senior laboratory Blood Bank scientist and should take about 2-3 hours. It assesses competence in the performance of standard basic transfusion serology techniques, as well as interpretation and reporting of results, e.g. provision of compatible red cell units and advice in relation to current/future transfusion. The exercise should be completed in the first few months of the year in which the trainee sits the Part I examinations. The completed DOPS Practical Transfusion Serology form is to be kept in the trainee's portfolio and should be signed by the assessor and signed off in the annual supervisor report. Please do not send forms to the RCPA.					
Trainee name		RCPA ID	Stage of training Y1 Y2 Y3 Y4 Y5 if >Y5, please specify		
Assessor name		Assessor position			
Number of hours spent performing the method prior to DOPS assessment		Has the trainee completed the laboratory's usual training process for this method? <input type="checkbox"/> yes <input type="checkbox"/> no			
Please indicate whether these aspects of the trainee's performance are as expected or better than expected for the stage of training			Yes	No	n/a
Appropriate lab practice, e.g. safety, specimen handling, storage, disposal					
Clerical checks					
Transfusion history where available					
Blood Group/Ab screening					
Additional serological testing e.g. phenotype, elution, extended testing for Ab ID					
Cross match					
Documentation/interpretation of results					
Selection of appropriate blood products					
Advice on current/future transfusion					
Please comment on other relevant aspects, especially on aspects for improvement (use the reverse side if insufficient room)					
Final outcome (please tick) <input type="checkbox"/> As expected for the stage of training <input type="checkbox"/> Below expected for the stage of training		Date of DOPS	Time taken for DOPS	Time taken for feedback	
Name (print) and signature of assessor			Signature of trainee		
Name of laboratory					

 <h1 style="margin: 0;">RCPA</h1> <p style="font-size: small; margin: 0;">The Royal College of Pathologists of Australasia</p>	<h2 style="margin: 0;">Haematology</h2> <h3 style="margin: 0;">DOPS form for Bone Marrow Biopsy</h3> <p style="font-size: x-small; margin: 0;">(DOPS = Directly Observed Practical Skill) This form is to be completed by the observer</p>				
<p>How to use this form Before doing this DOPS, trainees must be considered by their supervisors to be competent to perform all steps of a bone marrow biopsy as indicated below without assistance. The trainee, whether single discipline or Joint, must be observed performing a minimum of one (1) Bone Marrow Biopsy DOPS. Ordinarily this will occur by the end of the first six months of laboratory training.</p> <p>The completed DOPS bone marrow biopsy form is to be kept in the portfolio and should be signed by the assessor and signed off in the annual supervisor report. Please do not send forms to the RCPA.</p>					
Trainee name	RCPA ID	Stage of training Y1 Y2 Y3 Y4 Y5 if >Y5, please specify			
Assessor name	Assessor position <input type="checkbox"/> Pathologist <input type="checkbox"/> Senior clinician <input type="checkbox"/> Other (pls specify)				
Number of hours spent performing the method prior to DOPS assessment	Has the trainee completed the laboratory's usual training process for this method? <input type="checkbox"/> yes <input type="checkbox"/> no				
Please indicate whether these aspects of the trainee's performance are as expected or better than expected for the stage of training			Yes	No	n/a
Pre-procedure					
Indications for procedure					
Patient review for risk. Special issues/preparation e.g. on anticoagulants, anti-retrovirals, diabetic, allergies, anaesthetic problems					
Explanation/consent/complications					
Procedure:					
WHS issues, e.g. needlestick, blood splash					
Sterile procedure					
Setup of patient including anatomy/positioning					
Conscious sedation [should know and follow local procedures]					
Local anaesthesia, pharmacology, complications, drug checking					
Resuscitation [should have documented CPR sign off from local institution]					
Obtaining adequate aspirate and trephines samples					
Equipment including BM needle, needles, syringes, slides					
Difficult/special situations e.g. obese pts, hard bone, dry tap, children					
Criteria for taking additional tests e.g. flow/molecular/cytogenetics					
Post procedure:					
Specimen labelling, handling, transport, sign in to laboratory					
Dressings, wound pressure, observations, advice to patient					
Documentation of procedure in medical record					
Identification, management & reporting of immediate and late complications/incidents					
Please comment on other relevant aspects, especially on aspects for improvement (use the reverse side if insufficient room)					
Final outcome (please tick) <input type="checkbox"/> As expected for the stage of training <input type="checkbox"/> Below expected for the stage of training		Date of DOPS	Time taken for DOPS	Time taken for feedback	
Name (print) and signature of assessor			Signature of trainee		
Name of laboratory					

CbD (Case-based Discussion) and PbD (Process-based) Assessment Form

Throughout training trainees should seek opportunities to present and discuss cases and laboratory processes with experienced colleagues and receive feedback.

Case-based discussions

For single-discipline trainees, five different cases should be completed, of which two are mandatory: worker health and safety and massive transfusion. At least three cases should be signed off as satisfactory before the Part I examination. The others may be chosen from the topics on the list. Trainees wishing to do additional CbDs on these or other laboratory haematology topics are encouraged to do so.

For Joint trainees, three (3) laboratory-based cases only are required to be completed during the two laboratory years, of which massive transfusion is mandatory.

Process-based discussions

Both single-discipline and joint trainees must complete one process-based discussion during training.

CbD and PbD assessments are excellent preparation for the oral examinations. They indicate the development of the ability to interpret and relate pathological results to clinical findings; to plan appropriate investigations and make decisions in relation to patient care, including decisions with ethical and legal dimensions. The purpose of these assessments is also to provide feedback to trainees about their progress by highlighting strengths and areas for improvement, thereby encouraging their professional development.

The trainee should initiate each CbD or PbD assessment and select a suitable assessor, who should be an RCPA Fellow but does not need to be the listed supervisor. The trainee should select two (2) recent cases in which s/he has been involved through identification of abnormal laboratory tests/new patient cases/clinical liaison requests, etc. The assessor should select one (1) of these for the trainee to present and discuss. The trainee should request a mutually convenient time to meet for about 30 minutes. The presentation/discussion should take about 15-20 minutes. A further 5-10 minutes should be allowed for the assessor to give immediate feedback and complete the form. In addition to the formal CbD or PbD assessment, supervisors are encouraged to have an informal discussion of the second case prepared by the trainee.

Grading, standards and outcome of assessment

Each aspect of the trainee's performance should be graded in terms of whether the standard of performance is as expected for the stage of training. The "n/a" option should be used if the assessor has not observed that aspect or is otherwise unable to comment. The assessor should discuss strengths as well as areas for improvement with the trainee. Feedback should be given sensitively, in a suitable environment. Areas for development should be identified, agreed and recorded on the form.

The final outcome should only be graded as consistent with the level of training if all aspects have been performed to the standard expected of a trainee at that stage. A trainee whose performance falls below this level will be able to repeat the assessment with no penalty.

Record keeping

The CbD and PbD forms must be fully completed, signed and dated by the trainee and the assessor. Only forms for which the trainee has met the standard need to be recorded in the portfolio.

 <b style="font-size: 2em; vertical-align: middle;">RCPA The Royal College of Pathologists of Australasia		<b style="font-size: 1.2em;">Haematology Case-based Discussion (CbD) Assessment Form		
Trainee name		RCPA ID	Stage of training Y1 Y2 Y3 Y4 Y5 if more than Yr5, please specify	
Assessor name and position				
Focus of discussion (tick as many as apply) <ul style="list-style-type: none"> <input type="checkbox"/> Massive transfusion (mandatory) <input type="checkbox"/> Investigation of a local WHS issue, focussing on documentation, management and corrective action (mandatory) <input type="checkbox"/> Laboratory work-up of a new patient with acute leukaemia/other high grade haematological malignancy <input type="checkbox"/> Approach to a complex anti-coagulation management, e.g. ant-coagulation in pregnancy, heparin-induced thrombosis/thrombocytopenia syndrome, peri-operative anti-coagulation etc <input type="checkbox"/> Work-up of a complex transfusion serological problem, e.g. transfusion for patients with multiple allo-antibodies, autoimmune haemolysis, rare blood groups, a clinically significant transfusion reaction, transfusion in pregnancy/the neonate, etc <input type="checkbox"/> Approach to management of QAP results obtained by the laboratory, with discussion of potential causes, investigation and documentation of unsatisfactory results. Ideally discussed with the relevant supervising scientist. 				
NOTE: These forms are to be kept in portfolio. Please do not send forms to the RCPA.				
Complexity of case (tick box) <input type="checkbox"/> low <input type="checkbox"/> medium <input type="checkbox"/> high				
Brief description of case presented, discussed and assessed				
Why was this case selected for discussion?				
Does this case broaden the trainee's experience by being different from previous cases that have been discussed? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a				
Please indicate whether these aspects of the trainee's performance are as expected or better than expected for the stage of training			Yes	No
			n/a	
Ability to present case clearly and concisely				
Good understanding of clinical issues relating to the case				
Good understanding of laboratory issues relating to the case				
Depth of understanding and awareness of current literature relevant to this case				
Ability of interpret results in a balanced and rational way				
Ability to provide and clearly communicate well reasoned professional advice				
Ability to clinically correlate the laboratory tests results in the setting of clinical presentation of the patient.				
Ability to suggest further relevant or more useful tests towards the management of the patient in relation to diagnosis and monitoring including prognostication.				
Ability to communicate findings to a non-medical person (e.g. patient, lawyer)				
Understanding of management and financial aspects of the case				
Overall laboratory and clinical judgment				
Please comment on other relevant aspects, especially on aspects for improvement (use the reverse side if insufficient room)				
Final outcome (please tick) <input type="checkbox"/> As expected for the stage of training <input type="checkbox"/> Below expected for the stage of training		Date of CbD	Time taken for CbD	Time taken for feedback
Name (print) and signature of assessor			Signature of trainee	
Name of laboratory				

 RCPA The Royal College of Pathologists of Australasia		Haematology Process based discussion (PbD) Assessment Form	
Trainee name		Trainee ID (RCPA)	Stage of training Y1 Y2 Y3 Y4 Y5 if more than Yr5, please specify
Assessor name and position			
Focus of discussion <input type="checkbox"/> Receiving of blood products and inventory management			
Please comment on whether these aspects of the trainee's performance are as expected for the stage of training		Yes	No
Ability to discuss the processes clearly and concisely			
Good understanding of clinical issues relating to the process			
Good understanding of laboratory issues relating to the process			
Understanding and awareness of guidelines/standards relevant to the process			
Ability to troubleshoot if variance occurs			
Understanding of the pitfalls/problems of the process			
Appreciation of cost/financial implications			
Please comment on other relevant aspects, especially on aspects for improvement (use the reverse side if insufficient room)			
Final outcome (please tick) <input type="checkbox"/> As expected for the stage of training <input type="checkbox"/> Below expected for the stage of training		Date of CbD	Time taken for CbD
Name (print) and signature of assessor		Time taken for feedback	
Name of laboratory		Signature of trainee	



Haematology Supervisor sign off form for Meetings

How to use this form

This form is to be used to record that the trainee has fulfilled the following requirements:

- Throughout training, attend at least 50% of the available meetings in one or more of the following categories
 - multidisciplinary clinical meetings
 - quality/audit meetings
 - transfusion/blood management committee meetings (at least one is mandatory)
 - laboratory management meetings as appropriate to training site
- Present cases or issues at a minimum of four (4) meetings per year throughout training.

The supervisor or appropriate senior person is asked to sign after each meeting to verify the trainee's participation. Trainees should retain a list of the cases/entities presented at each meeting in the portfolio. At the end of each year, this form and appended case lists should be sighted by the supervisor and signed off on the annual supervisor report. Please do not send forms to the RCPA.

Please START A NEW FORM AT THE BEGINNING OF EACH YEAR OF TRAINING

Trainee name		RCPA ID	Stage of training Y1 Y2 Y3 Y4 Y5 if > Y5 please specify	
	Meeting date	Brief description of meeting	Trainee presented case/s? Y/N	Supervisor signature
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Appendix 9

Assessment matrix

Outcomes to be assessed Outcomes are organised according to the RCPA common curriculum framework		Assessment method (see key below)							
		Part 1			Part 2		Portfolio		Sup
		A	B	C	D	E	F	G	H
1.1	Foundation knowledge and skills	X	X	X	X		X	X	X
1.2	Pre-accession interactions with referring clinician/patient		X	X	X			X	X
1.3	Selection, accession, management, processing of specimens				X		X		X
1.4	Use of laboratory instruments and equipment		X		X		X		X
1.5	Technical skills		X		X		X		X
1.6	Clinical procedures				X		X		X
1.7	Production, analysis, reporting of laboratory data	X	X		X		X	X	X
1.8	Storage and retrieval of laboratory data				X		X		X
1.9	Developing and communicating an opinion: consultative skills		X	X	X		X	X	X
1.10	Monitoring patient progress		X	X	X		X		X
2.1	Quality management: assurance & control			X	X			X	X
2.2	Laboratory safety			X	X		X		X
2.3	Compliance with legislation		X	X	X		X		X
2.4	Manage people			X					X
2.5	Manage resources			X	X		X		X
2.6	Information fundamentals			X	X	X	X		X
3.1	Research and critical appraisal			X	X				X
3.2	Undertaking self-education and CPD				X				X
3.3	Educating colleagues staff, patients/families								X
3.4	Providing data for planning and evaluation				X				X
4.1	Ethics and confidentiality			X	X		X	X	X
4.2	Communication	X	X	X	X	X	X	X	X
4.3	Collaboration, respect for others' skills, teamwork				X				X
4.4	Cultural competence			X				X	X

Key	Assessment methods
A	Part 1 written exam: essay-type questions and SAQ
B	Part 1 dry practical exam
C	Part 1 structured oral exam
D	Dissertation
E	DOPS: directly observed practical skills
F	CbD and PbD: case-based and process-based discussions
G	Portfolio of workplace based activities in the following categories <ul style="list-style-type: none"> • Safety checklist, online safety education module • Attendance/presentations at clinical meetings • Laboratory investigations • Clinical practice • Management meetings, online management education modules • Online ethics education modules • Teaching
H	Supervisor report