

Guideline

Subject: **Junior Medical Officers Pathology Rotations**
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Introduction

This document describes templates recommended by the RCPA for Junior Medical Officer rotations in clinical, general, anatomical and forensic pathology.

An increase in the number of Australian medical graduates requiring prevocational training positions has prompted efforts to develop innovative approaches to employing and training junior medical officers (JMOs) Rotations in pathology will enable JMOs to gain valuable learning experiences in pathology to enhance their clinical knowledge and skills and may stimulate an interest in a pathology career.

The RCPA is keen to promote such rotations and provide guidance to pathology departments, hospitals and postgraduate medical councils that may be in a position to implement them.

The following templates draw their key capabilities, common problems and conditions, skills and procedures directly from the Australian Curriculum Framework for Junior Doctors. Details of this framework may be viewed and downloaded from the Confederation of Postgraduate Medical Councils website at <http://curriculum.cpmecc.org.au/>

Activities have been selected as far as possible to map to this framework. The templates are not prescriptive, but are designed to be selected from and modified according to local needs and to provide assistance with completing applications in accordance with local regulations and requirements.

After consultation with a number of pathologists, four possible models have been developed.

As well as these rotations, JMOs may be allocated professional development leave. Laboratories may wish to provide an opportunity for JMOs to use this time observing laboratory work.

Model 1: Clinical pathology

This model provides an opportunity to link one of the clinical pathology disciplines (microbiology, haematology, immunology or chemical pathology) to a corresponding clinical service.

Suitable for:

- Doctors considering a career in any pathology discipline or in clinical haematology, oncology, infectious diseases, immunology, renal medicine, hepatic medicine, endocrinology or clinical research

- Any doctor wishing to gain an understanding of the integral role of pathology in clinical medicine, pathology as the basis of disease, the rational use of pathology investigations and the role of the pathology team

Description:

It is recognised that there is considerable variation in the way that JMOs are employed in clinical units and the resources that can be offered by respective laboratories. This model is therefore designed to provide maximum flexibility, providing general guidelines and examples of possible implementations that may be adapted to local requirements. Two possible approaches are proposed, though any variation in between would be possible:

1. A JMO could be assigned to a clinical unit, having normal clinical responsibilities though with a lighter than normal clinical load. The JMO may then be offered quarantined time to participate in laboratory activities in a primarily observational role. In addition they may undertake some practical procedures, teaching and clinical audit involving clinical liaison and quality use of pathology investigations.
2. The JMO could be assigned to a clinical laboratory such as microbiology, haematology, chemical pathology or immunology, undertaking some tasks as described in the general principles section. The JMO would participate in ward rounds and meetings of a corresponding clinical unit, but not have direct clinical responsibilities other than general out of hours and on-call duties

Examples of clinical/pathology liaisons

- Clinical infectious diseases and laboratory microbiology
- Clinical haematology/oncology and laboratory haematology
- Clinical endocrinology, hepatic or renal medicine and chemical pathology
- Clinical immunology and immunopathology

Model 2: General pathology

This is essentially a 'sampler' in which the JMO would experience an overview of a number of pathology services, including anatomical pathology and the clinical disciplines.

Suitable for:

- Doctors considering a career in any pathology discipline or in clinical haematology, oncology, infectious diseases, immunology, renal or hepatic medicine, endocrinology or clinical research
- Any doctor wishing to gain an understanding of the integral role of pathology in clinical medicine, pathology as the basis of disease, the rational use of pathology investigations and the role of the pathology team

Description:

The JMO would spend 2-4 weeks in each of 3-4 pathology departments, including anatomical pathology, haematology, chemical pathology, microbiology and/or immunology. He or she will primarily have an observer role but should be required to actively contribute to educational activities and to undertake a clinical audit or other quality-related project.

Model 3: Anatomical pathology

This is an opportunity for the JMO to explore the role of the anatomical pathologist and the correlation between clinical presentations, macroscopic and microscopic anatomy. The JMO would also gain some basic practical laboratory skills.

Suitable for:

- Doctors interested in a career in pathology, surgery, oncology, gynaecology or dermatology
- Any doctor wishing to gain an understanding of the integral role of pathology in clinical medicine, pathology as the basis of disease, the rational use of pathology investigations and the role of the pathology team

Description:

The JMO would have a posting within an anatomical pathology laboratory, but may attend meetings and activities in other pathology and clinical departments.

The focus is upon participation in laboratory activities, particularly specimen cut-up, microscopic examination and reporting under strict supervision.

Exposure to molecular techniques would be an advantage.

An emphasis on particular specimen types could be tailored to the JMO's interests, e.g. surgical biopsies, dermatopathology, gynaecological pathology and cytopathology.

Liaison with surgical or other units relevant to the JMO's interests is strongly encouraged. The JMO may also spend time observing procedures in other pathology departments.

Model 4: Forensic pathology

This is an opportunity for the JMO to gain insight into fundamentals of autopsy pathology, the investigation of deaths, the interpretation of wounds and wounding, the investigation of adverse medical treatment events, injury prevention and public health, medico-legal issues and the legal system. The opportunity to assist with autopsies could also provide valuable experience for those wishing to develop their knowledge of surgical anatomy.

Suitable for:

- Doctors interested in a career in pathology, forensic pathology, emergency medicine, public health, surgery or forensic medicine
- Any doctor wishing to gain an understanding of the integral role of pathology in clinical medicine and as the basis of disease and the role of the forensic pathology team

Description:

The JMO would have a posting in a forensic pathology service but may attend meetings and activities in other pathology and clinical departments including surgical pathology and clinical forensic medicine units.

The focus would be on participating in the activities of the forensic pathologists and the medico-legal death investigation process. Residents will have an opportunity to assist with autopsies, gain experience in post-mortem medical imaging, macroscopic and microscopic anatomical pathology and the operation of the legal system.

General principles

Intended use of these templates:

- The templates are not intended to be prescriptive but to provide guidance to local program directors in organising schedules and selecting activities that fit best with local arrangements.
- Government departments should fund these rotations, ensuring that this also covers funding for pathologists and laboratory staff to provide extra supervision, mentoring and administrative support.
- All terms would be suitable for either PGY1 or PGY2, although it is recognised that approvals will vary between jurisdictions.
- The length of the rotation will be dictated by local requirements, however longer rotations are preferable where possible.
- JMOs participating in “advanced standing” pathways in pathology will be required to complete at least one of these rotations.
- All JMOs in pathology rotations may participate in general clinical after-hours and on-call duties in addition to laboratory duties.

Occupational health and safety:

All participants in these programs must undergo a laboratory safety orientation prior to undertaking any laboratory procedures.

Supervision:

The directors of the relevant laboratory departments will have ultimate supervisory responsibility for supervision, although day-to-day supervisory responsibility may be delegated to other pathologists and pathology registrars.

Registrars having supervisory responsibilities should be supported in this role, ideally having access to programs such as ‘Teaching on the Run’ or similar.

Assessment:

There may be local requirements for compulsory assessments, but other assessments would be optional.

All JMOs in pathology rotations should be informed about the Basic Pathological Sciences seminar and examination that is available to all medical graduates and final year medical students. Those who are keen to pursue a career in pathology should be strongly encouraged to attend the seminar and attempt the examination on the dates published on the RCPA website.

Possible formative assessments could include:

- Logbook or portfolio with feedback from specialists/registrar/laboratory manager
- Feedback on oral presentations
- Self-assessments and quizzes. Supervisors will be encouraged to submit examples to the RCPA in order to build an online resource on the RCPA website for access by all participating JMOs.
- Assessment of practical laboratory skills such as examination of microscope slides.

Educational resources:

- The resident will be expected to attend relevant educational meetings in the department, hospital and local area.
- All participants in these rotations should be directed to the RCPA website for general information about careers in pathology and training with the RCPA. Residents may also apply for temporary access to the members' area in order to access educational materials such as online teaching modules and self-assessments.
- Other online resources include:
 - Common Sense Pathology
 - RCPA Manual
 - RCPA fact sheets
 - Material available via the CPMEC website
- Microscope teaching slide sets will be available in most anatomical pathology, haematology and microbiology laboratories.
- Recommended reading for all rotations is: Robbins & Cotran Pathologic Basis of Disease, 8th edition by Kumar, V et al.

Key capabilities from the Australian Curriculum Framework for Junior Doctors that may be addressed, depending on the specialty area:

- Participate in continuous quality improvement e.g. clinical audit
- Select investigations and specimens thoughtfully in the context of a particular patient presentation and use results appropriately to guide patient management
- Provide relevant and succinct information on request forms
- Recognise the role of the laboratory team in patient assessment
- Know the stages of a verification process to ensure the correct identification of a patient
- Know the main sources of error & risk in the workplace
- Understand the personal health risks of needle-stick injuries
- Practice correct hand-washing and aseptic techniques
- Always use methods to minimise transmission of infection between patients
- Understand prudent antibiotic/antiviral selection
- Inform authorities of notifiable diseases
- Consider the positive & negative aspects of health screening & prevention
- Use healthcare resources wisely to achieve the best outcomes
- Understand the abnormal physiology & manifestations of critical illness
- Demonstrate a knowledge of patient fluid & electrolyte requirements in all age groups and understand the risks of gross fluid & electrolyte imbalance
- Demonstrate an ability to present cases to senior medical staff & other health professionals
- Understand common research methodologies
- Explore and be open to career opportunities in pathology

Common problems and conditions from the Australian Curriculum Framework for Junior Doctors that may be encountered, depending on the specialty area:

- Neoplasia
- Anaemia
- Renal failure
- Pyelonephritis and urinary tract infections

- Pneumonia/respiratory infection
- Septicaemia
- Sexually Transmitted Infections
- Leg ulcers
- Diarrhoea
- Gastrointestinal bleeding
- Diabetes: new cases/complications

Skills and procedures from the Australian Curriculum Framework for Junior Doctors that may be performed, depending on the specialty area:

- Blood culture
- Wound swab
- Joint aspiration
- Lumbar puncture
- Endocervical swab
- Throat swab
- Urethral swab
- Urine dipstick testing
- Antibiotic prescription/monitoring
- Anticoagulant prescription/monitoring
- Blood sugar estimation
- Insulin prescription/monitoring

Examples of activities:

Clinical

- Participate in ward rounds in critical areas such as haematology, oncology, ICU, (adult, paediatric and neonatal), orthopaedic, transplant unit. etc and providing up to date information on laboratory results
- Attend outpatient clinics with specialists in relevant areas
- Attend infection control or drug committee meetings as an observer
- Fine needle biopsies of superficial lumps (anatomical pathology)
- Bone marrow trephine biopsy and examination (haematology)
- Microbiological specimen collection and tuberculin skin testing

Laboratory

- Job shadow a senior registrar and carry out duties as directed by the registrar
- Participate in specimen reception and initial processing
- Perform selected laboratory procedures such as preparation of smears and slides, staining, microscopy (tissue sections, blood films, Gram stains etc), setting up and reading assays and plating of microbiology specimens under supervision of scientific and specialist staff
- Observe specialists/registrars reporting and prepare practice reports for feedback
- Observe surgical specimen dissection and assist with simpler cases under supervision. Identify abnormal features in tissue specimens and select suitable portions for processing (anatomical pathology)
- Examine microscopic sections and cytological preparations with multi-header teaching. Identify malignant changes (anatomical pathology)
- Attend autopsies when possible (anatomical and forensic pathology)

Educational

- Give educational presentations to clinicians, medical students, laboratory and ancillary staff
- Coordinate clinico-pathological correlation meetings and assemble relevant clinical materials
- Attend educational activities in the laboratory such as plate rounds, staff development and journal club.
- Attend relevant clinical meetings in the hospital
- Assist with patient education, e.g. in diabetes clinic

Examples of research and quality projects:

- Participate in an existing departmental research project with contribution to practical procedures and/or literature search and ensuring understanding of ethical considerations.
- Review and collate laboratory data to describe epidemiological phenomena such as antibiotic resistance patterns or distribution of serological data or other laboratory parameters.
- Evaluation of accuracy of point of care testing devices such as urine dipsticks and glucometers.
- Carry out a clinical audit, for example:
 - Test ordering patterns for selected specimens
 - Quality and appropriateness of test requests and samples for selected laboratory tests.
 - Degree of understanding of test results by JMOs and other clinicians and how it can be improved
 - Action taken by JMOs and other clinicians following receipt of abnormal results
 - Turnaround time and flow of information from test request to clinical action
 - Follow-up of abnormal results after discharge from emergency department

Program evaluation and monitoring

Participating JMOs and supervisors will be encouraged to provide written feedback to the RCPA. This should include an evaluation of the positive and negative impacts on the JMO and the laboratory, and resources required to sustain the program. It will also evaluate the impact of the experience on the JMOs career plans.

The RCPA should be informed of all approved positions and a term description should be provided. The RCPA will maintain a database of all approved positions.

The above information will be used to:

- Continuously improve the suggested models
- Plan for support required to sustain the programs
- Assist with workforce planning
- Provide a basis for recognition of prior learning for those who may wish to register for training with the RCPA