MODULE 11

Education and Scientific Enquiry

This Module is to be completed during Advanced Training. It can be undertaken concurrently with clinical Modules.

Trainee’s Aims

In this Module, Trainees will learn the scientific approach to problem-solving, and gain experience in searching for information and in analysing, writing, and presenting scientific information.

The aim of Module 11 is for Trainees to acquire a series of abilities in scientific enquiry and in practising evidence-based medicine, and an appreciation for lifelong learning. Trainees will:

- Complete tasks to gain skills in self-directed continuing education and scientific enquiry
- Develop an understanding of evidence-based medicine
- Complete a Formal Project which has a component on evidence-based medicine

Learning Objectives

These are what the Trainee needs to learn. They are presented as:

- Knowledge
- Clinical management (“knows how”) that applies knowledge and clinical skills to manage the patient
- Skills (clinical and technical)
- Attitudes and behaviours

Knowledge

Trainees will understand the scientific approach to analysis and solving questions worthy of scientific investigation. The steps and considerations include:

- Proposing a hypothesis
- Information search and literature review
- Research design, bias and appropriate methods of measurement
- Data collection and storage
- Copyright and intellectual property
- Good record keeping
- Common statistical tests and application of statistics relevant to the project
- Interpretation of results
- Monitoring of studies and post study surveillance
- Responsibilities of Institutional Review Board/independent ethics committee
- Responsibilities of investigator to the ethics committee
- Principles of writing a scientific paper
- Principles of oral or poster presentation of a paper
- Principles of evidence-based medicine
- NHMRC levels of evidence
- Ethical principles
- The process of obtaining funding and writing a basic grant application
Skills
Trainees will acquire skills in scientific learning as a medical specialist including:

- Conducting and appraising literature searches
- Appraising journal articles including the application of statistics
- Applying the principles of evidence-based medicine to clinical practice
- Carrying out oral presentations and professional communication
- Presenting quality assurance exercises or projects
- Developing facilitation skills, such as tutoring in small-group learning and conducting small-group meetings

Attitudes
Trainees will develop an appreciation of and commitment to continuing education and scientific enquiry, including:

- Valuing rigorous educational and scientific processes
- Distinguishing between practice with a sound scientific basis and that which requires further objective assessment
- Committing to informed consent, confidentiality and all other ethical principles of research
- Committing to lifelong continuing professional development

Assessment
Completion of Module 11 does not need to be validated by a Module Supervisor. However, Trainees must complete a Formal Project. The process, requirements and assessment of the Formal Project are as set out in the ANZCA document TE11(2003) Formal Project Guidelines.

The Supervisor of Training and other Consultants will evaluate the Trainee’s overall performance in the In-Training Assessment (ITA) process. Aspects of clinical performance, education skills, and attitudes will be reviewed. The ITA will remain a formative assessment conducted every six months, independent of Module assessment.

Aspects of Module 11 that are relevant to professional practice may be examined in the Primary and Final Examinations (eg, statistics and research ethics).

The Learning Portfolio is an integral tool for self-assessment (as well as for recording clinical experience and developing study plans). The Trainee is expected to self-evaluate his/her education skills and learning experience from the Learning Portfolio. For example, the Learning Portfolio should show the Trainee’s progress through the Module, as records of papers presented or submitted, projects submitted for grants or ethics approval, literature searches and topics reviewed.