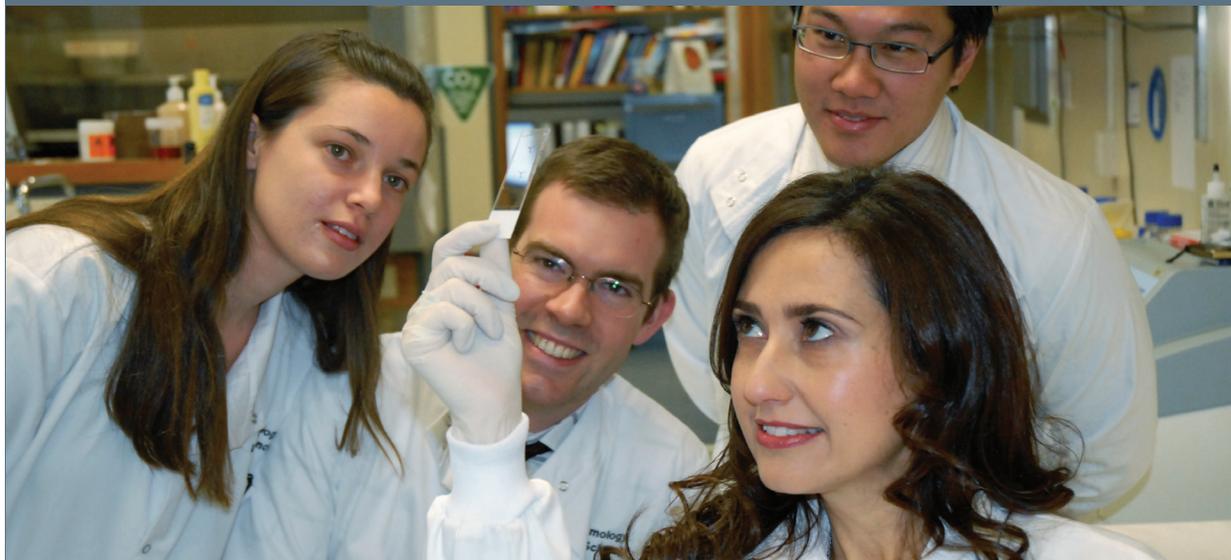RANZCO

Curriculum Standards

November 2009

Evidence based Ophthalmic Practice (EBOP)

The Royal Australian and New Zealand
College of Ophthalmologists

UT-VIDEANT

Table of Contents

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Purpose

Clinical ophthalmic practice is underpinned by a thorough understanding of evidence based medicine. This is acquired through critical appraisal of available data, using knowledge of research methods. Epidemiology and biostatistics form the basis of research methodology.

The skills required will include the ability to perform a literature search effectively, the ability to critically appraise published articles and to demonstrate the application of evidence-based findings to clinical practice. These skills are outlined in elements 1-4 of this standard. Conducting original research is also a component of evidence-based medicine. Research relates to element 5 of the curriculum standard.

Assessment Method

Element E1-4: Each trainee in basic training is required to satisfactorily complete an online critical appraisal of two assigned journal articles, accessed through the College website. Topics of articles may relate to Global Eye Health (E3) or Health Economics (E4). Online access to this assessment is provided in one month sessions. Trainees must book with the College to enrol in a session.

Element E5: Research is assessed through the research requirement for the Vocational Training Program.

Please note: From 2010, trainees commencing the Vocational Training Program will not be required to complete the online assessment.

References

Fletcher, R. W. and Fletcher, S. W. (2005) Clinical Epidemiology: The Essentials Fourth Edition. Lippincott Williams and Wilkins: Philadelphia USA.

World Health Organisation: http://www.who.int/blindness/causes/en/

Kertes, P. and Johnson, M. T. (2007) Evidence-Based Eye Care, Chapter 2, Lippincott Williams and Wilkins: Philadelphia USA.

Structure

This standard comprises five elements with their associated learning outcomes and performance criteria.

Learning Outcomes	Performance Criteria
E1 Critical Appraisal Skills 1.2 Study Design 1.3 Measurement 1.4 Statistics	
1.1 Critically appraise and evaluate journal articles	• Critique the choice of study design including research question, population, study factor, outcome factor, confounding variables and sample size • Evaluate a study's logic and its methods of data collection. • Evaluate the appropriateness of statistical methods employed. • Evaluate the strengths and limitations of the study design and interpretation. • Demonstrate whether the conclusion is supported by the results
1.2 Understand the fundamentals of study design, and of collecting, summarising, analysing, and interpreting statistical data for hypothesis testing and hypothesis generating purposes.	• Assess the relevance of study design strategies including prospective versus retrospective designs, descriptive versus analytic designs, and the advantages versus disadvantages of each type of study. • Understand hierarchical levels of evidence of the study types, including randomised controlled trials, longitudinal (cohort), case control, cross-sectional studies surveys and meta-analysis. • Consider ethical issues which affect ophthalmic clinical decision making
1.3 Appropriately assess the relevance and interpretation of disease and exposure measurements	• Knowledge of measures of exposure and outcome parameters, disease, frequency, prevalence versus incidence of disease, relative risks and odds ratios. • Interpret sensitivity, specificity, and predictive values of clinical, diagnostic and epidemiological screening tests. • Evaluate the validity and reliability of the measurement.

Learning Outcomes	Performance Criteria

1.4 Demonstrate knowledge of commonly used statistical methods applicable to medical research and their appropriate application.	• Know correct use of measures of central tendency and dispersion
	• Know correct uses of tests of statistical significance:
	  • P values, confidence intervals and sample size estimations
	  • Methods of analysis of categorical and continuous variables
	  • Regression modelling: linear or logistic
	  • Survival analysis
	• Identify bias, including its direction and size and evaluate its potential significance as a threat to the validity of a study's conclusion.
	• Account for potential confounding, using methods to adjust or minimise confounding.
	• Understand sensitivity analysis.
	• Understand correlation and association indices.
	• Understand intention to treat strategy

E2 Evidence Based Clinical Practice

Learning Outcomes	Performance Criteria
2.1 Critically evaluate the evidence, and determine its relevance to ophthalmic practice	• Evaluate the strengths and limitations of evidence-based medical practice as an approach to ophthalmic care. • Evaluate the validity of the results and generalisability of the study • Synthesise the available evidence to guide ophthalmic practice

E3 Global Eye Health

Learning Outcomes	Performance Criteria
3.1 Understand world-wide causes of ophthalmic morbidity, its prevention and treatment **(http://www.who.int/blindness/causes/en/)**	• Understand the social, geographic and environmental factors and differences in ophthalmic diseases world-wide. • Know the leading world-wide causes of visual loss in the adult and paediatric populations.

Learning Outcomes	Performance Criteria
E4 Health Economics	
4.1 Understand basic health economic constructs, and economic analysis as an approach to the availability of health care resources. **(Kertes and Johnson 2007 Evidence-Based Eye Care, Chapter 2)**	• Understand cost-minimisation, cost-benefit, cost-efficiency and cost-utility studies. • Understand Quality Adjusted Life Years (QALY), Disability Adjusted Life Years (DALY), and discounting techniques in economic evaluation. • Understand the ethics of health resource utilisation. • Understand decision-tree analysis.
E5 Research	
(This element will be assessed through the research requirement for the VTP) **5.1 Report, communicate and engage in debate on research findings.**	Specifically an applicant for Fellowship of the College is required to demonstrate this capacity by doing one of the following: • Present a paper at a meeting for which abstracts are subject to review and selection • Publish a paper as first author in a peer reviewed journal • Engage in an approved period of full time research to be assessed by the QEC in the region where the trainee is undertaking training • Undertake postgraduate study leading to a higher degree by thesis or research • The research will demonstrate the trainee's ability to: • Ask an answerable question, compile a search strategy, and access resource databases and websites • Locate and interpret systematic reviews • Conduct critical appraisals of evidence including a knowledge of some specific appraisal tools and approaches • Assess whether and how evidence summaries and guidelines might (or might not) apply in a particular clinical case