



To serve the public and guide the medical profession

The College's ECG Interpretation Examination (Last updated May 2009)

The College has administered an electrocardiogram (ECG) interpretation examination since the 1970s. **This examination is used to identify non-cardiologists who are competent to act as consultants on ECG-interpretation and to bill the Alberta Health Care Insurance Plan for those consultations.**

The ECG examination is offered twice each year, alternating between Calgary and Edmonton. It consists of forty high-quality reproductions of 12-lead ECGs from real patients. The abnormalities represented are typical examples of ischemic changes, old and new myocardial infarctions, pericarditis, arrhythmias, conduction disturbances, artificial pacing and lead reversals and other frequent findings.

Exam candidates have three hours to complete 40 tracings. Candidates may use basic ECG rulers, calipers and electronic calculators provided they do not come with more detailed reference material attached to them.

The ECG examination has been validated using standard psychometric processes and is continually reviewed for performance.

Each exam is marked independently by three examiners: a general practitioner, an internist and a cardiologist. Inter-rater variability of scores is continually evaluated and is consistently narrow. Points are awarded for correctly identifying the key features in each tracing, with differential weighting for criticality and difficulty.

Successful candidates who pass this examination have generally participated in weeks or months of practice-based ECG-training under expert tutelage. **In our experience, few individuals who learn ECG interpretation only through self-study are successful on this examination.**

Tips for writing this examination include:

- It is not necessary to report clinical diagnoses or treatments. It is only necessary to report the electrocardiographic diagnoses.
- Abnormal rates or intervals or axes should be reported, but precise numerical values for each are not necessary.
- The cardiac rhythm(s) must be reported for every tracing. In some tracings, multiple rhythms or separate rhythms for the atria and ventricles should be reported.
- Abnormal cardiac rates should be reported (Eg: "brady-", "tachy-", "accelerated-" and "controlled-").
- Each myocardial infarction within a tracing should be characterized by apparent age (acute, old, indeterminate) and anatomic location.
- Repolarization abnormalities that are separate from an infarction or conduction abnormality should be reported.
- Conduction deficits should be reported in the most specific terms possible, (e.g. LBBB, RBBB, Incomplete LBBB, left or right hemiblock, degree of AV-block, type of 2° block, etc.)
- Arrhythmias should be reported in the most specific terms possible (e.g. report atrial flutter as "atrial flutter" rather than as "supraventricular tachycardia").

A list of references is attached for consideration, but candidates are reminded of the importance of practice-based instruction.

ECG Bibliography List

- Electrocardiography - E.K. Chung, 3rd Edition, Appleton-Century-Crofts, Norwalk, Connecticut, 1985.
- Practical Electrocardiography - H.J.L. Marriott, 8th Edition, Williams Wilkins, Baltimore, 1988.
- Clinical Electrocardiography, Lipman, 8th Edition, Year Book Medical Publishers Incorporated, 1989.
- The Rapid Interpretation of EKG's Programmed Course - D. Dubin, 4th Edition, Cover Publishing Co., Tampa, Florida 1989. (Available at the University of Alberta book store.)
- How to Quickly and Accurately Master ECG Interpretation - Dale Davis, 2nd Edition, Lippincott Company, Philadelphia, 1991 (Available at the University of Alberta book store.)
- How to Quickly and Accurately Master Arrhythmia Interpretation - Dale Davis, Lippincott Company, Philadelphia, 1989 (Available at the University of Alberta book store.)

- Marriott's Practical Electrocardiography
Good reference textbook-starts with basic principles, quite comprehensive and detailed.
- Rapid Interpretation of ECG (Dale Dubin)
Good introduction to basics, not a lot of depth or breadth
- 12-Lead ECG – The art of Interpretation (Tomas Garcia)
Intermediate in detail between Dubin's book and Marriott.

Internet Websites

www.ecglibrary.com - Library of ECG Recordings

The site authors have put online a collection of ECG recordings, many in 12-lead format that can be used for teaching and review purposes. There is also a list of other sites related to ECG interpretation that might be helpful. Note that the site was last updated in September 1998, so many of these links may be outdated.

<http://medstat.med.utah.edu/kw/ecg/> - The Alan E. Lindsay ECG Learning Center

This is an online interactive tutorial hosted by the University of Utah School of Medicine. It is organized in sections based on a recommended method of ECG interpretation. Each section provides didactic information, illustrations, and an interactive quiz.

www.cma.com – Clinical Electrocardiography, 1999

The members only reference section of the CMA website provides access to a full text online version of this ECG textbook. Use your password to access the Members Only section. Go to MD Consult, Clinical Knowledge, Reference Text, Cardiology, Select Goldberger, Clinical Electrocardiography, 1999.

<http://sprojects.mmi.mcgill.ca/heart/egcyhome.html> - ECG World Encyclopedia

ECG tracings in a number of different categories (e.g. infarction, arrhythmias, conduction abnormalities) are presented, as well as a link to an interpretation and/or comments on each. The site is suitable for teaching and review purposes.

<http://omni.ac.uk/browse/mesh/D004562.html> – Electrocardiography Teaching Materials

Annotated lists of links to online ECG teaching materials compiled by Omni, a directory of online resources in health and medicine for health care professionals.