



## Alberta Provincial Project for Outcome Assessment in Coronary Heart Disease

**APPROACH's mission is to collect and process information to improve cardiac care for all Albertans.**

**Thank you to all personnel at the Foothills Medical Centre, Royal Alexandra Hospital, University of Alberta Hospital, Rockyview General Hospital, Peter Lougheed Centre, Medicine Hat Regional Hospital and Lethbridge Regional Hospital who have diligently entered data into the APPROACH registry.**

**The APPROACH Calgary Team has moved to the TRW (Teaching, Research and Wellness) Building, 3280 Hospital Dr NW. For updated contact information, please submit a support request through our website.**

**Download a fully functional demo version of CARAT and view CARAT Tutorials at our website.**

## What is APPROACH?

APPROACH is a practical, effective and patient-focused initiative. Coronary artery disease, the leading cause of death and disability in Canada, continues to be our prime focus.

The APPROACH software is copy written and began with a cathlab and CV surgery database in Alberta in 1995. In the 15 years since APPROACH was launched it has expanded geographically across the country as well as conceptually to areas of waitlist management, ACS, nuclear medicine and most recently, CT angio. This powerful tool currently includes clinical information on 126,500 Albertans with diagnostic cardiac catheterization and/or revascularization procedures, and, more recently, 34,000 patients with hospital admissions for ACS. APPROACH has become an invaluable resource for frontline and

administrative healthcare providers.

Since the inception of APPROACH, patients undergoing cardiac catheterization have been asked to consent to long-term follow up; patients respond to a health status survey at baseline as well as 1, 3 and 5 years.

Using APPROACH provides the opportunity for a long-term view of the patient journey and ongoing assessment of the patient's quality of life in the transition for acute events (such as acute coronary syndromes - ACS) to chronic realities; a perspective that spans the continuum of care. This data continues to reveal important insights into short and long term quality indicators and management strategy effectiveness in Alberta and confirms to us that together we can do an even better job of caring for patients.

The success of the APPROACH initiative requires real-time prospective data collection, the ongoing skill and commitment of key outcome and information technology specialists and an acceptance of this work in a collaborative spirit within each partner healthcare facility. Our goal is to ensure that the very latest strategies for care, quality promotion and surveillance are made available.

Important ongoing developmental priorities include: development of a dynamic risk model to inform urban and rural physicians and patients, expansion from a procedure-based orientation to a disease-based outcome focus and collaboration with the electronic medical record initiative to develop communication tools and promote better decision making through innovative use of health information.

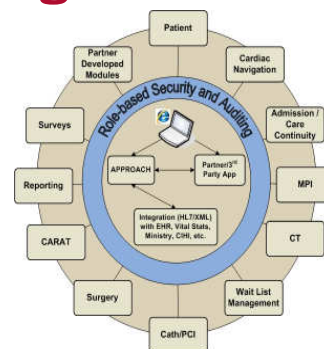
## APPROACH Online - Coming Soon!

The APPROACH Team has been focused on the next generation of the APPROACH software, 'APPROACH Online' which will be released in 2010.



APPROACH Online is web-based (accessed via a web browser), and includes features such as:

- Enhanced role-based security and auditing
- Modular software components
- A focus on data exchange/integration (HL7/XML)
- Intuitive, user-friendly interface maximizes productivity and minimizes the learning curve for new users.
- Web-based administrative and clinical reporting.



## Coronary Artery Reporting and Archiving Tool

*The Intersection of Science and Art*

CARAT is a state-of-the-art graphic recording and communication application for medical caregivers.

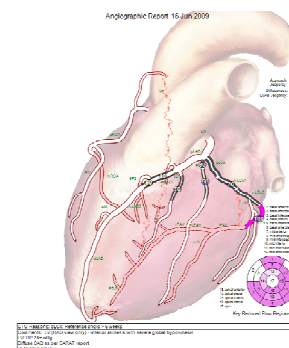
As the artist paints details onto a canvas, so the medical practitioner can "paint" arterial details directly onto an anatomically accurate representation of the heart. Blockages, narrowing, lesions, hardening, and any other features are added at the stroke of a mouse.

Once a patient's arterial condition is accurately reflected in the on-screen CARAT diagram, the diagram can

then be printed, or exported in PDF format and shared online or via email. In Alberta, the CARAT diagram is exported to Alberta Netcare for immediate access by clinicians.

Finally there is an accurate and consistent coronary artery information recording and communicating format for cardiologists, CT angiographers, and other medical caregivers.

Precise, concise, intuitive, and attractive, CARAT makes coronary artery reporting and archiving a fine art.



**The APPROACH team has conducted quality of life analyses, economic evaluations, examinations of health care access, bias, and clinical outcomes research. This research has appeared in high-impact international and national journals.**

**Primary APPROACH Contacts:**

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**For more information,  
please visit our  
website:**

[www.approach.org](http://www.approach.org)



## Recent Peer-Reviewed Publications

Austin D, Oldroyd KG, Holmes DR, Rihal CS, Galbraith PD, Ghali WA, Legrand V, Taeymans Y, McConnachie A, Pell JP, on behalf of the APPROACH Investigators, Belgian Working Group on Invasive Cardiology, Mayo Clinic PCI Registry, and Scottish Coronary Revascularisation Registry Glasgow, United Kingdom; Rochester, MN; Calgary, Canada; and Liege, and Gent, Belgium. **Drug-eluting stents: A study of international practice.** Am Heart J 2009;158:576-84.

Mohamed R, McAlister FA, Pretorius V, Kapoor AS, Majumdar SR, Ross DB, and Norris CM for the APPROACH Investigators. **Preoperative statin use and infection after cardiac surgery: a cohort study.** Clin Infect Dis. 2009 Apr 1;48(7):e66-72.

King KM, Southern DA, Cornuz J, Maitland A, Knudtson, ML, Ghali WA. **Elevated Body Mass Index and Use of Coronary Revascularization after Cardiac Catheterization.** Am J Med 2009 Mar;122(3):273-80.

Philpott A, Southern DA, Clement FM, Galbraith PD, Traboulsi M, Knudtson ML, Ghali WA for the APPROACH Investigators. **Long term outcomes of patients receiving drug eluting stents.** CMAJ 2009 Jan;180(2):167-174.

Chow BJW, Abraham A, Wells GA, Chen L, Ruddy TD, Yam Y, Govas N, Galbraith PD, Dennie C, Beanlands RS. **Diagnostic accuracy and impact of computed tomographic coronary angiography on utilization of invasive coronary angiography.** CIRC Cardio-

vasc Imaging 2009; 2:16-23.

Schmaltz HN, Southern DA, Maxwell CJ, Knudtson ML, Ghali WA, for the APPROACH Investigators. **Patient Sex Does Not Modify Ejection Fraction as a Predictor of Death in Heart Failure: Insights from the APPROACH Cohort.** J Gen Intern Med. 2008 Dec;23 (12):1940-6.

Ko DT, Donovan LR, Huynh T, Rinfret S, So DY, Love MP, Galbraith D, Tu JV; Canadian Cardiovascular Outcomes Research Team (CCORT). **A survey of primary percutaneous coronary intervention for patients with ST segment elevation myocardial infarction in Canadian hospitals.** Can J Cardiol. 2008 Nov;24(11):839-43.

Gyenes GT, Ghali WA. **Should all patients with asymptomatic but significant (>50%) left main coronary artery stenosis undergo surgical revascularization?** Circulation. 2008 Jul 22;118(4):422-5. (Clinician update.)

Oreopoulos A, Padwal R, Kalantar-Zadeh K, Fonarow GS, Norris CM, McAlister FA. **Body mass index and mortality in heart failure: a meta-analysis.** Am Heart J 2008;156(1):13-22.

Norris CM, Hegadoren K, Patterson L, Pilote L. **Sex differences in prodromal symptoms of patients with acute coronary syndrome: a pilot study.** Prog Cardiovasc Nurs 2008;28(1):27-31.

Oreopoulos A, Padwal R, Norris CM,

Mullen JC, Pretorius V, Kalantar-Zadeh K. **Effect of obesity on short- and long-term mortality post-coronary revascularization: a meta-analysis.** Obesity 2008;16(2):442-450.

Hubacek J, Kalla S, Galbraith PD, Graham MM, Knudtson ML, Ghali WA, for the APPROACH Investigators. **Outcomes of revascularization strategies for two vessel coronary artery disease involving the proximal left anterior descending artery in an era of improved pharmacotherapy and stenting.** Can J Cardiol 2008; 24 (2):121-126.

Southern DA, Norris CM, Quan H, Shrive FM, Galbraith PD, Humphries K, Gao M, Knudtson ML, Ghali WA. **An administrative data merging solution for dealing with missing data in a clinical registry: adaptation from ICD-9 to ICD-10.** BMC Med Res Methodol. 2008 Jan 23; 8(1): 1.

Makowsky MJ, McAlister FA, Galbraith PD, Southern DA, Ghali WA, Knudtson ML, Tsuyuki, RT for the Alberta Provincial Program for Outcome Assessment in Coronary Heart Disease (APPROACH) Investigators. **Lower extremity peripheral arterial disease in individuals with coronary artery disease: Prognostic importance, care gaps, and impact of therapy.** Am Heart J 2008;155:348-55.

## Current APPROACH Grants

CIHR - Canadian Institute for Health Research (Jul 2009 - Jun 2012): **Understanding "Troponinitis": Exploring myocardial injury and its clinical and health services implications.** PI: Graham MM.

CIHR - Canadian Institute for Health Research (Jun 2009 - Jul 2011): **Development of audit with feedback**

**intervention to improve acute cardiovascular care using APPROACH.** PI: Sales AE.

FOMD/CH (Faculty of Medicine and Dentistry and Capital Health) Emerging Research Team Grant (2008-2010) **Outcomes of medical, surgical and percutaneous treatment of PAD.** PI: McMurtry S, McAlister F.

CFI - Canadian Foundation for Innovation with matched funds from Libin Cardiovascular Institute of Alberta and Mazankowski Alberta Heart Institute (July 2007 - June 2010): **Broadening the scope of APPROACH.** PI: Ghali WA.

## Sponsors

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The ongoing operation of APPROACH has been made possible by contributions from:

The Provincial Wide Services Committee of Alberta Health and Wellness



And by donations from industry sponsors:

