Stroke Update 2012

Stroke prevention and management in primary care

A free forum, at the Accelerating Primary Care Conference
Fairmont Banff Springs Hotel November 18, 2012

Organized by the Alberta Health Services Cardiovascular Health & Stroke Strategic Clinical Network and the Institute of Health Economics

Sponsored by Boehringer Ingelheim (Canada)

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Stroke Update 2012

was a free forum for primary care clinicians, held in conjunction with the annual *Accelerating Primary Care* conference in Banff, Alberta, November 18, 2012. The forum brought together 5 physician leaders to review the current "state of the art" in the rapidly advancing field of stroke prevention and care, with an emphasis on the role of primary care.

The forum was organized by the Alberta Health Services (AHS) Cardiovascular Health & Stroke Strategic Clinical Network (SCN), and the Institute of Health Economics.

The forum was sponsored by Boehringer Ingelheim (Canada), which has also sponsored the innovative *Integration of Care in Atrial Fibrillation* ("I See AF") project since inception.

For more information, contact:
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Program

Stroke update: Highlights from the Canadian Stroke Congress

- Dr. Andrew Demchuk
  Stroke Neurologist and Director
  Calgary Stroke Program

A primary care team approach to preventing stroke: Intergrating Care for Atrial Fibrillation ("I See AF")

- Dr. Rick Ward
  Family Physician,
  Calgary Foothills PCN
- Dr. Russell Quinn
  Cardiologist, Foothills
  Medical Centre

Cutting through the noise: Current best practices for stroke prevention in primary care

- Dr. Naeem Dean
  Stroke Physician/Internist
  University of Alberta Hospital

CV Health & Stroke Strategic Clinical Network: Provincial priorities for stroke prevention and care

- Dr. Blair O'Neill
  AHS SCN Senior Medical Director
  Past President, Canadian
  Cardiovascular Society

See all the presentations at www.ihe.ca/knowledge-transfer-initiatives /--stroke-update-2012/

Stroke update: Highlights from the Canadian Stroke Congress

Dr. Andrew Demchuk
Stroke Neurologist and Director
Calgary Stroke Program

In this intensive 30-minute presentation, Dr. Demchuk highlights key points in current stroke science for primary care clinicians. He focuses on secondary prevention and treatment, including recent advances in the science around Transient Ischemic Attacks (TIAs) and minor strokes, and progression from minor events to major ones.

How can an organized primary care team such as a PCN prevent stroke and its complications?

- Primary Prevention
  - Hypertension, lipids, smoking cessation, obesity, diet
  - Atrial fibrillation

- Secondary Prevention
  - Same risk factor modification
  - TIA risk stratification and management
  - Recurrent stroke prevention- work-up and management

- Stroke- Acute Treatment/Complications/ Rehab

Risk stratification is the key

"High risk patients are those with symptoms within the last 48 hours, that were motor/speech, lasting at least 5 minutes, and/or atrial fibrillation with TIA. And the reason for that is that the management is quite different with atrial fibrillation."

TIA Risk Stratification: Clinical

	Benign/low risk	Intermediate risk	Malignant/high risk
Timing since event	months weeks	days **hours**	**minutes**
age	<45y	**>60y**	
BP in ED/clinic	normal	high	very high?
DM/glucose	no/normal	high	very high
symptoms	dizziness/vertigo sensory	blurry curtain	**speech weakness**
duration	seconds few min	**10-60 min**	**>60 min persisting**
frequency	many	**one**	**few**

Acute Stroke: Every Minute Counts

"(In an acute stroke) what keeps the brain alive initially is collateral backdoor flow. And sometimes that collateral backdoor flow is quite substantial... But eventually brain that is being supplied by collateral backdoor flow will die, and **we lose on average about 2 million neurons per minute in acute stroke.**"

Estimated Pace of Neural Circuitry Loss in Typical Large Vessel, Supratentorial Acute Ischemic Stroke

	Neurons Lost	Synapses Lost	Myelinated Fibers Lost	Accelerated Aging
Per Stroke	1.2 billion	8.3 trillion	7140 km/4470 miles	36 yrs
Per Hour	120 billion	830 billion	714/447 miles	3.6 yrs
Per Minute	**1.9 million**	14 billion	12 km/7.5 miles	3.1 weeks
Per Second	32,000	230 million	200 meters/218 yards	8.7 hours

Tailor Prevention by Etiology

"We're learning in the last 10 years or so that the **management varies increasingly by which etiology you find**. So it's extremely important that we, as stroke physicians or those of you that are admitting patients to your hospitals with stroke, do a proper workup to distinguish which of these causes is responsible for the stroke, because the management is increasingly different."

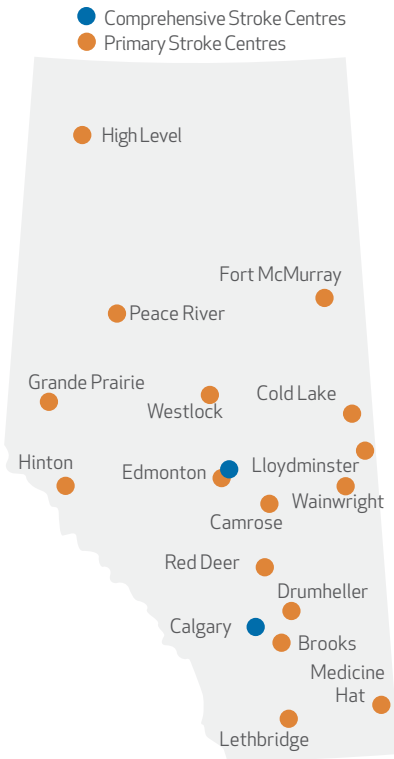
Stroke or TIA
- Cardioembolic
  - Anticoagulation for high risk sources (warfarin if not atrial fib)
    - If atrial fib: dabigatran, apixaban, rivaroxaban, warfarin

Large artery atherosclerosis (CT-angio or MRA)
- short course of ASA/clopidogrel
- high dose statins; treat to target LDL<2
- +/- revascularization if >50% ICA stenosis and early after event

Small vessel disease (arteriolosclerosis) (MRI)
- Aggressive blood pressure control to target most NB
  - ARB, Ca channel blockers, diuretics especially if systolic Htn
  - Avoid high dose statins
  - Single antiplatelets

Stroke centres well distributed in Alberta

"Alberta has a well distributed network of primary stroke centres that are geographically located with CT scanners to cover roughly 97 percent of the population."



A primary care team approach to preventing stroke: Integrating Care for Atrial Fibrillation - "I See AF"

Dr. Rick Ward
Family Physician, Calgary Foothills PCN

Dr. Russell Quinn
Cardiologist, Foothills Medical Centre

In this presentation, Dr. Ward and Dr. Quinn describe a paradigm shift for management of Atrial Fibrillation (AF) – and for primary care physicians working in multidisciplinary teams (MDTs).

AF has long been known to be a major risk factor for stroke. Moreover, up to 40% of AF is estimated to be "silent," ie undiagnosed. Yet at the same time there is a well-documented "risk-treatment paradox": only about half of patients at high risk, including those with diagnosed AF, are managed with anticoagulants, which is about the same proportion as low-risk patients. One-third of high-risk patients will have a stroke or die within a year of being diagnosed with AF, according to a major 2011 study of Alberta patients.

Boehringer Ingelheim

With the support of Boehringer Ingelheim, Dr. Ward and colleagues in the Calgary Foothills Primary Care Network (CFPCN) decided to try to fill the gap in identification and management of AF. They launched a pilot project to screen all chronic-disease patients – those with heart failure, COPD, etc. – for AF, using a simple 30-second pulse check by the MDT (an RN or pharmacist).

The pilot was a success, and it now forms the basis for a comprehensive paradigm shift for the primary care team. Instead of simply referring patients with AF to specialists, the CFPCN team is *moving to protocol-based management of high-risk patients within the primary care practice, in partnership with specialists.*

Why screen for AF, and why treat it more aggressively?

Every stroke costs the health system $50,000 in the first 6 months for direct care alone.

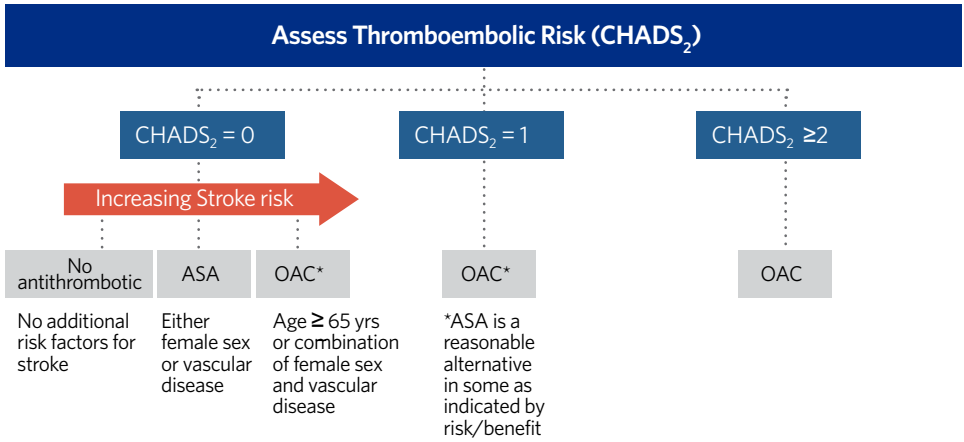
"We know that atrial fibrillation causes stroke, and we know that we have effective treatments. We know which patients to treat. **These are relatively simple things to get right**. And as with so many things in medicine, **doing the simple things well can make a huge, huge difference to patient care.**"

Where we're at...

- We know AF causes stroke
- We know we have effective treatments to prevent stroke in AF
- We know which patients to treat
- We know that stroke can be the first presentation of AF
- We've known this for many years

CCS Guidelines 2012 update

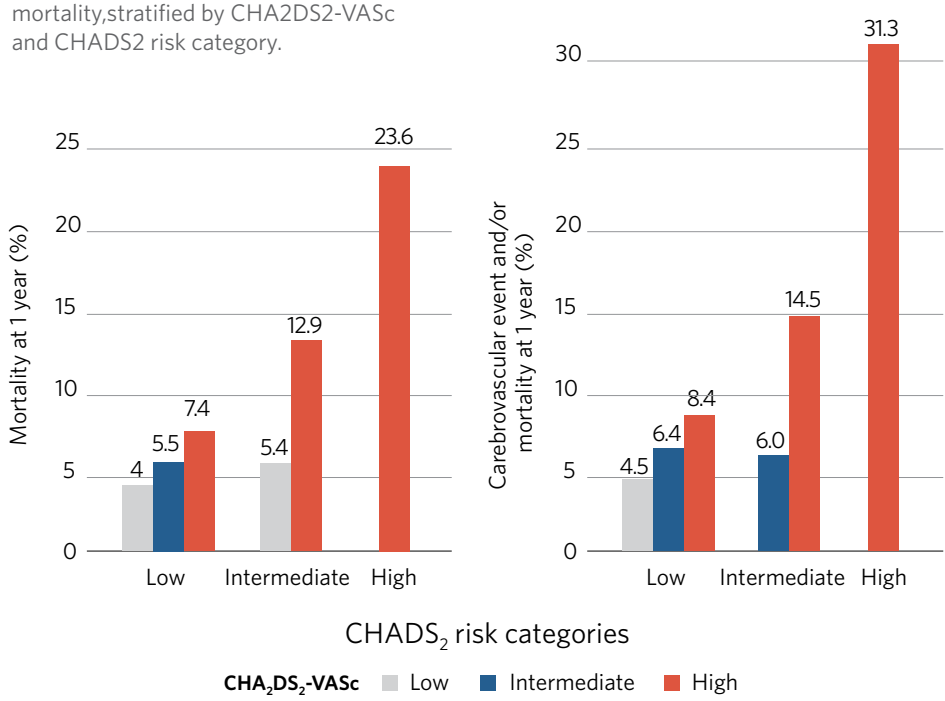
"In the CCS 2012 Guidelines update for atrial fibrillation, **we've got very clear algorithms and flowcharts as to what to do with patients.**"



Nearly 1/3 or high risk patients had a stroke or were dead in 1 year.

"If you were a high-risk patient, $CHADS_2$ score of 2 or higher, **nearly 1/3 of these patients had a stroke or had died at 1 year after the atrial fibrillation was picked up.**" Warfarin reduced rates of death or stroke by 40-50%. But only about 50% of patients (in this study) got Warfarin. "**It's almost like a ceiling.**"

One year rates of mortality or the composite of cerebrovascular event or mortality,stratified by CHA2DS2-VASc and CHADS2 risk category.



Sandhu RK et al. Heart. 2011;97:2046-50.

AF: A major opportunity for the primary care team

ICAF project

Primary Care Network
Calgary Foothills
- 330,000 patients
- 73 practices
- 320 MDs
- Annual budget $17M

LIBIN Cardiovascular
Institute of Alberta
- Calgary AF Clinic
- 8 MDs, 2 RNs

"At Calgary Foothills PCN, as well as many of the PCNs in Alberta, we were starting to recognize that teams can actually take on more of the kind of good care for these chronic patients."

In the beginning...

1. New guidelines – more aggressive management
2. New therapies – a new paradigm for FP's
3. An important, growing, 'hidden' chronic disease – where Primary Care MDT could play a role
4. Presumed gaps in care
5. A progressive, well organized PCN team to take on the project
6. A passionate, thoughtful, collaborative cardiologist who supported increasing FP and Primary Care Team self efficacy

The Calgary Foothills PCN surveyed member physicians about attitudes toward AF and knowledge of the CHADS2 scale and the CCS AF guideline.

"There was a gap in terms of knowledge. So then we thought, do the MDT players have a role to help close this gap? **Can we start to leverage our team members to help with this?**"

Guidelines familiarity

Familiarity with the new CCS guidelines on AF?	Percent
Unaware that these exist	19.5
Aware, but unfamiliar with the details	36.4
Some exposure, but not familiar with all the details	**35.1**
I am quite familiar with the guidelines and key messages	9.1

ICAF Project Goals

1. Identify patients with AF who are previously undiagnosed or inappropriately treated
2. Achieve appropriate therapy via knowledge translation and quality assurance programs that facilitate adoption of CCS AF guidelines
3. Integrate care so that majority of patients are managed within PCN – particularly anticoagulation – only appropriate, complex cases referred to specialists

Outcomes: fewer strokes, decreased cost to system, enhanced capacity within system.

How did the 3-month pilot work? All (1,420) patients attending MDT members for chronic disease management received a 30-second pulse check. Positives were sent for ECG (or as directed by a physician).

Overview of project

Phase 1 – screen high risk patients for previously undiagnosed AF, risk stratify and ensure that they receive evidence-based treatment

Phase 2 – ensure that patients with known AF receive guidelines based care

Phase 3 – protocol based management of high risk patients

Conclusion

This was an important, innovative initiative designed to establish meaningful metrics and had a REAL impact on the health of our patients!

Thanks to Boehringer Ingelheim for their support.

Current best practices for stroke prevention in primary care

Dr. Naeem Dean
Stroke Physician/Internist
University of Alberta Hospital

In this presentation, Dr. Dean surveys stroke prevention strategies, from primary and population-based measures to integrated stroke prevention clinics. He emphasizes the heavy overlap among vascular diseases that are usually diagnosed and treated separately: cerebrovascular disease, cardiovascular disease, and peripheral vascular disease. Most importantly, they share common risk factors, so patients need management to reduce their overall risk of vascular disease.

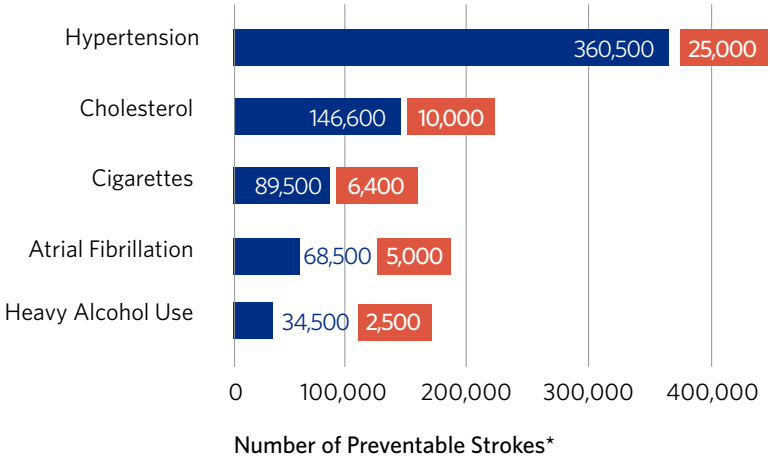
Patients with Previous Atherothrombotic Events are at Increased Risk of Further Events

	Increased risk versus general population	
	MI	Stroke
Ischemic Stroke	2-3X (includes angina and sudden death*)[1]	9X[2]
MI	5-7X (includes death)[3]	3-4X (includes TIA)[1]
PAD	4X (includes only fatal MI and other CHD death†)[4]	3-4X (includes TIA)[2]

*Sudden death defined as death documented within one hour and attributed to coronary heart disease (CHD)
† Includes only fatal MI and other CHD death; does not include non-fatal MI

1. Kannel WB. J Cardiovasc Risk 1994; 1: 333–339.
2. Wilterdink JI et al. Arch Neurol 1992; 49: 857–863.
3. Adult Treatment Panel II. Circulation 1994; 89: 1333–1363.
4. Criqui MH et al. N Engl J Med 1992; 326: 381–386.

How Many Strokes Annually Can be Prevented by Risk-Factor Control?



*Based on estimated 700,000 annual strokes.
Gorelick PB. Arch Neurol. 1995;52:347-355. Gorelick PB. Stroke. 2002;33:862-875.

Summary

- Atherothrombosis is a global disease and needs a **global approach** VS **organ approach**
- Stroke patients are at increased risk of recurrent stroke and vascular events in other territories
- Life style modification
- Identify and treat VRFs
- Initiate appropriate pharmacotherapy
- Treat the cause

Lifestyle Recommendations

1. **Healthy diet:** High in fresh fruits, vegetables and low fat dairy products, low in saturated fat and salt in accordance with the DASH diet

2. **Regular physical activity:** optimum 20-60 minutes of moderate cardiorespiratory activity 3-5/week or more

3. **Reduction in alcohol consumption** in those who drink excessively (<2 drinks/day)

4. **Weight loss** (≥ 5 Kg) in those who are over weight (BMI>25)

5. **Smoke-free environment**

The Cardiovascular Health & Stroke Strategic Clinical Network: Provincial priorities for stroke prevention and care

Dr. Blair O'Neill
AHS SCN Senior Medical Director
Past President, Canadian Cardiovascular Society

Dr. O'Neill reviewed the evidence around heart and stroke care and prevention in Alberta, and outlined the structure and an ambitious agenda for the Cardiovascular Health & Stroke SCN.

6 SCNs have been established to date:
- Cardiovascular Health and Stroke
- Addiction and Mental Health
- Bone and Joint Health
- Cancer
- Obesity, Diabetes and Nutrition
- Seniors Health

6 more SCNs are to be launched in 2013:
- Complex Medicine (including Respiratory)
- Maternal Health
- Neurological Disease, ENT and Vision
- Newborn, Child and Youth Health
- Population Health and Health Promotion
- Primary Care & Chronic Disease Management

The CVH and Stroke Leadership Team

Dr. Blair O'Neill, *Senior Medical Director*

Barbara Sonnenberg, *VP and Strategy Co-lead*

Dr. Colleen Norris, *PhD., Scientific Director*

Louise Morrin, *Executive Director*

Agnes Joyce, *Clinical Network Manager*

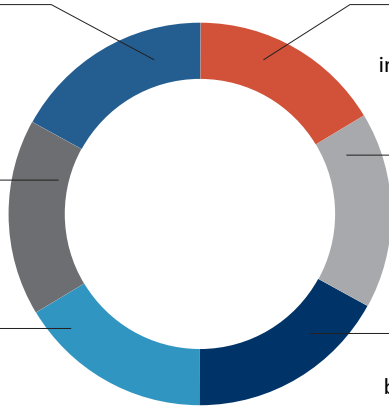
Special thanks
Dr. Tom Jeerakathil
Dr. Andrew Demchuk

A Successful and Sustainable Formula for Quality Health Care

Appropriateness
Health services are relevant to user needs and are based on accepted or evidence-based practice.

Safety
Mitigate risks to avoid unintended or harmful results.

Efficiency
Resources are optimally used in achieving desired outcomes.



Accessibility
Health services are obtained in the most suitable settingin a reasonable time and distance.

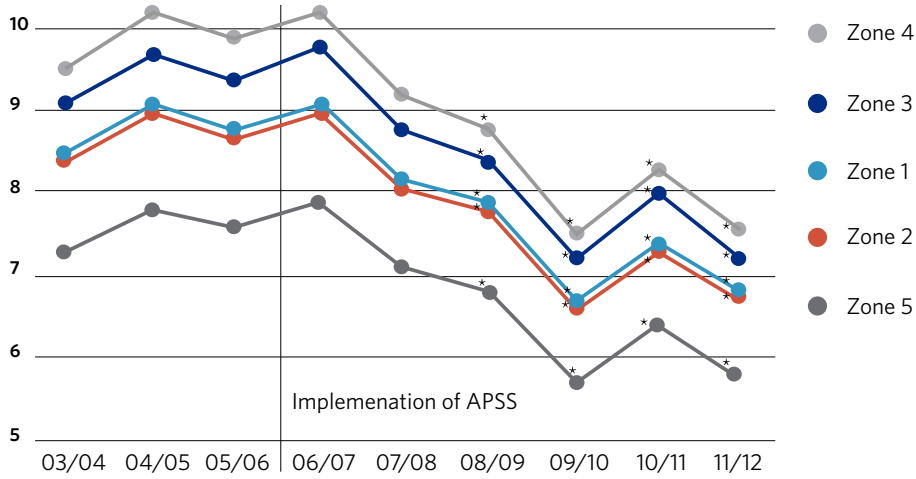
Acceptability
Health services are respectful and responsive to user needs, preferences and expectations.

Effectiveness
Health services are provided based on scientific knowledge to achieve desired outcomes

Initial SCN Goal: Innovate, Eliminate 'Waste' and Reinvest Resources
To improve Quality and Create a Sustainable System

The Alberta Provincial Stroke Strategy - a firm foundation

Stroke 30-day In-hospital Mortality by Zone - Adjusted Rates
(age, gender, Charlson Index for a Female Aged 60-84)



*All rates from years 2008/09 and on are statistically significantly different than 04/05. There are Statistically significant differences between Zone 5 and all other zones and between Zone 2 and Zone 4

Next steps for the SCN

CVH and Stroke SCN: Proposed Projects

- Vascular Risk Reduction
  - Primary Care/C-CHANGE recommendations
  - Community Pharmacy Screening
  - Workplace Health Screening
  - Integrated Prevention Clinics/Chronic Disease Mgmt
- Rural Stroke Improvement
  - Virtual Stroke Unit and Community Supported Discharge
- Endovascular Intervention
  - Mechanical Recanalization of cerebral arteries
- Cardiac Imaging Reassessment

Speaker Biographies

Dr. Blair O'Neill
Senior Medical Director, Alberta Health Services Cardiovascular Health & Stroke Strategic Clinical Network; Immediate Past President, Canadian Cardiovascular Society

Dr. Blair O'Neill is a Professor of Medicine and Director of the Division of Cardiology at the University of Alberta, and Senior Medical Director of the Cardiovascular Health and Stroke Strategic Clinical Network, Alberta Health Services. Dr. O'Neill came to Edmonton from Halifax, where he was a Professor of Medicine and Head of the Division of Cardiology at Dalhousie University, as well as Chief of Cardiology Service at the Queen Elizabeth II Health Sciences Centre. He was also clinical advisor to Cardiovascular Health Nova Scotia, the provincial cardiac program. He was president of the Canadian Cardiovascular Society for 2011/12. For his work in setting targets and benchmarks in access to cardiac care, Dr O'Neill was awarded the Heart and Stroke Foundation's 2006 Public Policy Award.

Dr. Andrew Demchuk
Stroke Neurologist and Director, Calgary Stroke Program

Dr. Andrew Demchuk is a Professor in the Department of Clinical Neurosciences for the Faculty of Medicine, University of Calgary. He is also a stroke neurologist and Director of the Calgary Stroke Program, Alberta Health Services. Dr. Demchuk's primary research interests focus on vascular imaging, where he is trying to establish target populations for new stroke treatments by selecting patients based on imaging tests performed in Emergency.

Dr. Rick Ward
Family Physician, Calgary Foothills PCN

Dr. Rick Ward is Medical Director, Primary Care and Section Chief, Community Primary Care, Calgary Zone, Alberta Health Services. He has been a partner at Crowfoot Village Family Practice since 1988. As well as his clinical practice, Dr. Ward is involved in teaching and program development with the Office of Continuing Medical Education and Professional Development at the University of Calgary, Faculty of Medicine. He was previously President of the Alberta College of Family Physicians (2008 - 2010) and Physician Lead, Chronic Disease Management for the Calgary Foothills Primary Care Network.

Dr. Russell Quinn
Cardiac electrophysiologist, Foothills Medical Centre

Dr. Russell Quinn is a cardiologist and clinical lead for the Atrial Fibrillation Clinic at the Libin Cardiovascular Institute in Calgary. His main area of interest is in catheter ablation therapy for cardiac arrhythmias. Dr. Quinn completed degrees in Physiological Sciences and Medicine at the University of Oxford, and a PhD at the University of Glasgow, where he investigated intracellular calcium handling in relation to contractile performance and arrhythmogenesis.

Dr. Naeem Dean
Stroke Physician/Internist, University of Alberta Hospital

Dr. Naeem Dean is a clinical professor in the Department of Medicine at the University of Alberta and founding clinical director of the Stroke Program at the Royal Alexandra Hospital in Edmonton. He chaired the prevention pillar for the Alberta Provincial Stroke Strategy. Dr. Dean graduated from King Edward Medical School in Lahore, Pakistan, and finished his postgraduate training in the UK. He came to Edmonton in 2000 for a Fellowship in stroke at the University of Alberta Hospital, and stayed on to establish the stroke program at the Royal Alexandra Hospital.

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The Institute of Health Economics (IHE) is a not-for-profit organization with key competencies in:

- Health economics
- Health technology assessment
- Decision analytic modeling, &
- Dissemination of findings from research

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IHE's Knowledge Transfer Program

Stroke Update 2012 was an example of IHE's expertise in knowledge transfer event programming and organization. We develop and manage seminars, forums, workshops, and conferences on a range of health-related matters. For more information on attending IHE events, or to inquire about having us develop and run a conference for your organisation, please contact us at info@ihe.ca.

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