

# Comparison of Primary Care Models in the Prevention of Cardiovascular Disease - A Cross Sectional Study

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# Road Map

- Background
- Objectives
- Methods
- Key findings
- Take home messages



# Background

- Primary care plays an important role in preventing and managing chronic health conditions
- Many industrialized nations have initiated reforms to optimize primary care delivery
- Over the past decade, Ontario has implemented different models
- Focus: interprofessional health care teams and physician remuneration



# Objective

**Compare the quality of preventive cardiovascular disease care amongst different primary care models in Ontario, Canada**

# Improved Delivery of Cardiovascular Care (IDOCC) through Outreach Facilitation

- Innovative primary care quality improvement project
- Aim: assist family practices in improving their delivery of evidence-based cardiovascular care
- For more information, please visit [www.idocc.ca](http://www.idocc.ca)
- Secondary analysis of baseline data collected from 82 practices



# Primary Care Models

## **Fee for Service (FFS): n = 43**

- Payment on a per service basis
- Single disciplinary

## **Blended Capitation: n = 27**

- Base payment for each enrolled patient
- Some practices receive government support for other health professionals

## **Salaried: Community Health Centres (CHC): n = 12**

- Fixed salary
- Interprofessional health care teams
- Underserviced, low-income patient population

# METHODS

- **Design:** Cross sectional review of randomly selected medical charts
- **Target:** Patients with or at high risk of developing CVD
- **Outcome:** Adherence to evidence-based manoeuvres across 6 areas of care related to CVD
- **Analysis:** Generalized Estimating Equations
  - Accounted for clustering of patients in practices
  - Adjusted for: patient age, patient sex, number of cardiovascular-related comorbidities, practice rurality and year of data collection
  - Pairwise comparisons for manoeuvres with significant differences

# PRACTICE CHARACTERISTICS

Characteristics	FFS	Blended Capitation	CHC
# of Practices	43	27	12
Interprofessional n (%)	2 (5.0%)	10 (37%)	12 (100%)
Urban Practices n (%)	36 (84%)	23 (85%)	8 (67%)
EMR n (%)	7 (16%)	21 (78%)	11 (92%)
Physician Grad. Year (median)	1983	1984	1991



# PATIENT CHARACTERISTICS

Characteristics	FFS	Blended Capitation	CHC
Number (n = 4,808)	2565	1555	688
Age (mean, SD)	66 (11.5)	66 (11.4)	64 (11.9)
Female n (%)	1356 (53%)	757 (49%)	354 (51%)
# of CVD Comorbidities (mean, SD)	2.7 (1.1)	2.8 (1.0)	2.8 (1.1)
Smokers n (%)	514 (20%)	324 (21%)	202 (29%)



# RESULTS

# RESULTS

Area of Care	Care Manoeuvre (over 1 year)	% Receiving Care		
		FFS	Blended Capitation	CHC
High Cholesterol	Lipid profile	78%	81%	78%
	Lipid lowering drug	92%	92%	90%
High Blood Pressure	2 blood pressures	78%	79%	81%
	Antihypertensive drug	95%	94%	94%
Chronic Kidney Disease	Estimated globular filtration rate (egfr)	91%	93%	91%



# RESULTS

Area of Care	Care Manoeuvre (over 1 year)	% Receiving Care		
		FFS	Blended Capitation	CHC
Diabetes	2 Hemoglobin A1c*	45%	62%	69%
Weight	Waistline measure*	5%	19%	8%
Smoking	Cessation advice	42%	67%	56%
	Referral to program	5%	11%	8%
	Smoking cessation drug therapy*	19%	33%	16%

\*  $p < 0.05$ : payment model has significant effect on delivery of care manoeuvre  
 O - significant differences in adjusted pairwise comparisons ( $p < 0.017$ )

# Take Home Messages

- There are important differences in quality of CVD care across primary care models in Eastern Ontario
- Adherence to guidelines for high blood pressure, high cholesterol, and chronic kidney disease are high across all models
- HbA1c screening is superior in CHCs; waistline screening and smoking care are superior in blended capitation
- FFS practices had biggest gaps in adherence to guidelines

# Study Limitations

- Secondary analysis – study was not designed to compare models
- Did not have data to control for socio-economic status
- Small sample size for sub-group analyses
- Participation bias
- Measurement bias (limitations of chart audit data)

# Our Partners



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# Bonus Slides

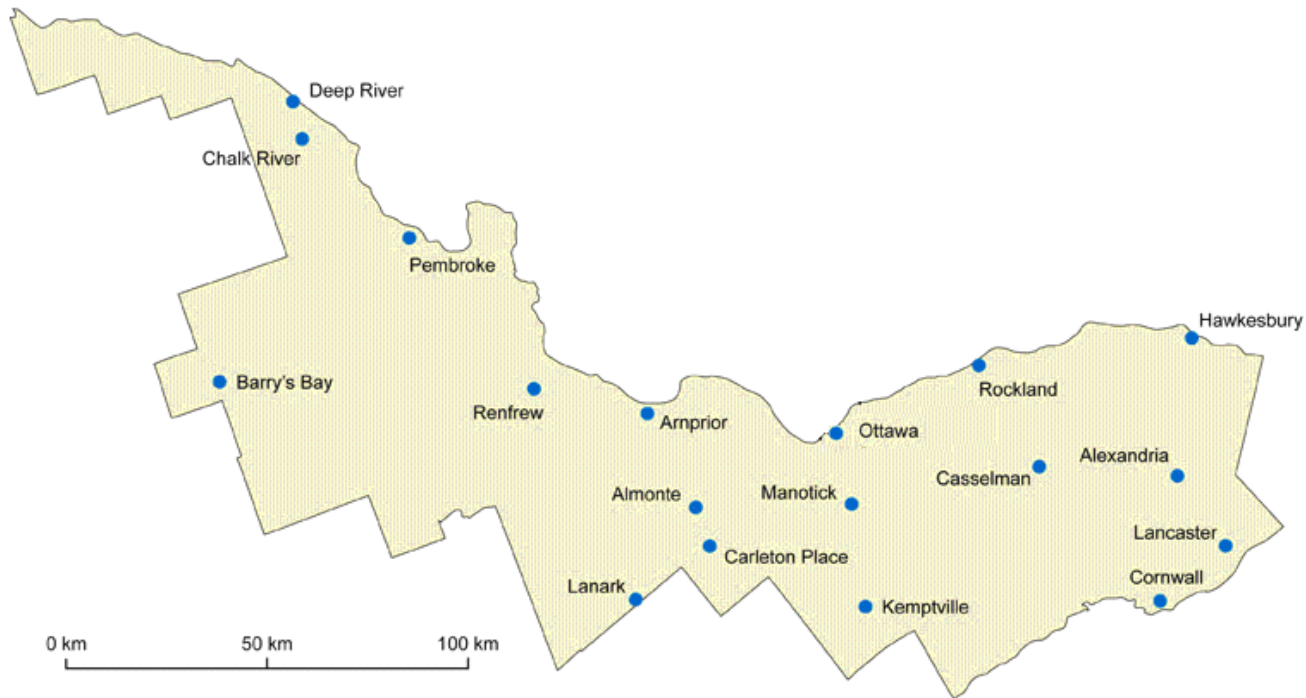


# Improved Delivery of Cardiovascular Care (IDOCC) through Outreach Facilitation

- IDOCC project aims to address gaps in quality of care
- Outreach Facilitation Approach
  - External healthcare professional with training in initiating practice change assists physicians increase adherence to evidence-based guidelines
    - Audit and Feedback
    - Decision Aids and Flow sheets
    - Linkages to external resources
    - Self Management tools
- For more information on IDOCC, please visit: [www.idocc.ca](http://www.idocc.ca)

# Participating Practices

Data collected from 82 Practices throughout the Champlain Region



# Other Studies

- **Tu et al.** – FFS worked most hours CHC the least, comorbidities similar between models, Average number of visits highest in CHC lowest in PCN, PCN had the highest treatment rates, PCN had the highest control rates – PCN performed best
- **Dahrouge et al** – capitation serves 40% of population CHCs serve 3% and FFS 60%, chronic disease care superior in CHCs
- **Hutchinson (1996)** – no significant difference in hospital rates between capitation & FFS
- **Russell et al.** – high quality chronic disease care can be promoted through financial incentives, capitated payment structures, improved internet technology, and wider use of non-medical health care professionals – presence of an NP and smaller practices improve care – CHCs higher diabetes care (diabetes programs), no evidence that EMRs impact care as was found in other studies,
- **Hogg et al.** (health promotion) – health promotion significantly better in CHCs than FFS, FHN, and HSOs, female physician + number of NPs had impact
- **Glazier et al.** – FFS and Capitation have similar demographic characteristics, patients in capitation had lower morbidity, comprehensiveness and continuity of care similar between groups, those in capitation practices had less after hours care, capitation had more visits to the ER, physicians in capitation enrolled fewer new patients

# A Closer look at the FHTs

Area of Care	Process of Care Indicator	% of patients that received specified process of care Indicator				
		FFS	Capitation	FHT	FHN/FHO	CHC
Dyslipidemia	Lipid Profile	78%	81%	82%	81%	78%
	Lipid lowering drug	92%	92%	95%	91%	90%
Diabetes	2 HbA1c tests	45%	62%	62%	62%	69%
Chronic Kidney Disease	eGFR	91%	93%	90%	94%	91%
Hypertension	2 blood pressure measures	78%	79%	86%	77%	81%
	Antihypertensive drug	95%	94%	97%	92%	94%
Weight Management	Waist Circumference	5%	19%	28%	16%	8%
Smoking Cessation Care	Smoking cessation advice	42%	67%	76%	64%	56%
	Smoking cessation program	5%	11%	25%	7%	8%
	Smoking cessation drug therapy	19%	33%	42%	30%	16%

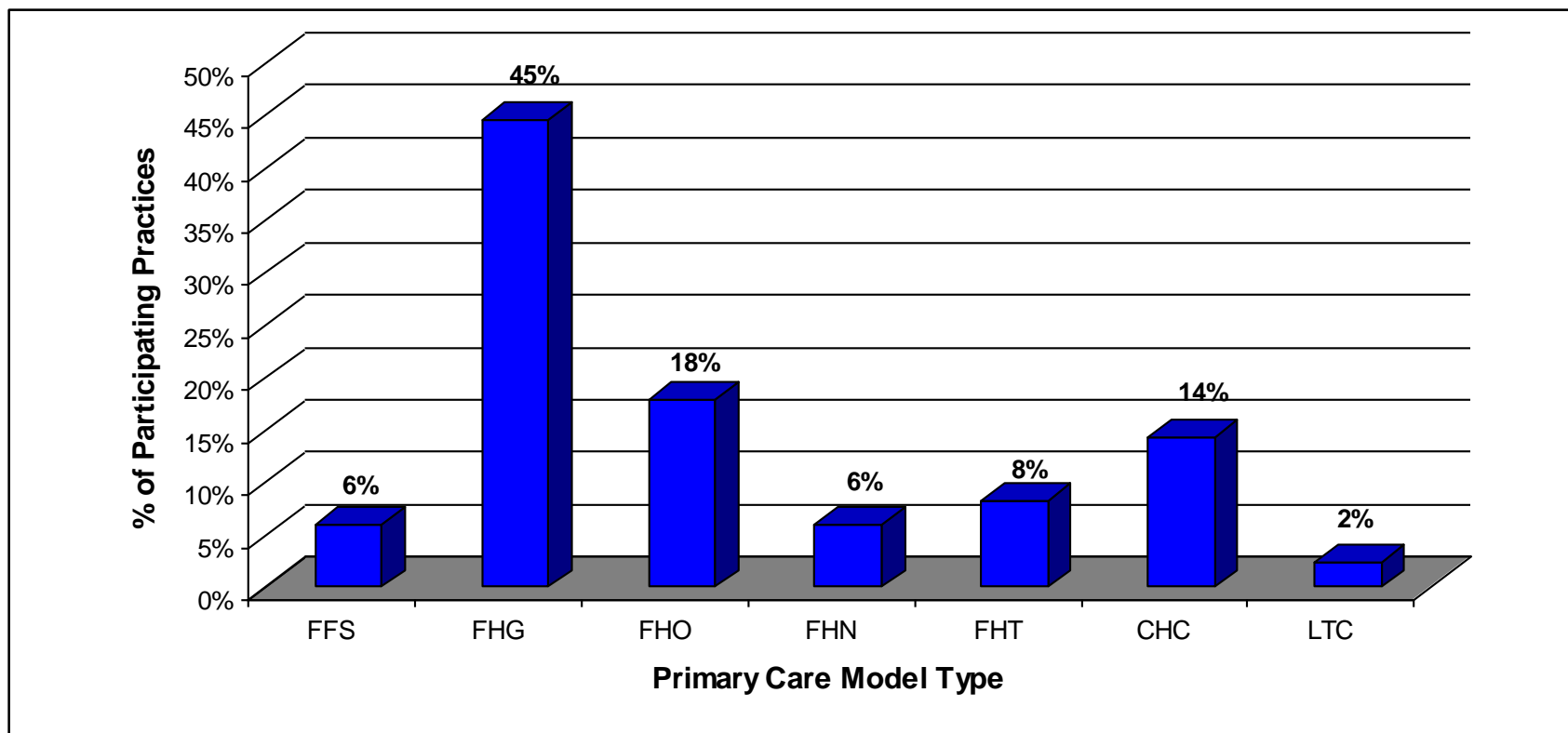
# Adjusted Results

Area of Care	Process of Care Indicator	p-value	Pairwise Comparison of Models: AOR [95% CI]		
			Capitation vs. FFS	CHC vs. FFS	Capitation vs. CHC
Dyslipidemia	Lipid Profile	0.60	1.1 [0.9-1.4]	0.9 [0.7-1.3]	1.2 [0.8-1.7]
	Lipid lowering drug	0.24	0.8 [0.5-1.3]	0.7 [0.4-1.0]	1.2 [0.7-2.1]
Diabetes	2 HbA1c tests	0.01*	1.5 [1.1-2.3]	2.4 <sup>†</sup> [1.4-4.2]	0.6 [0.3-1.2]
Hypertension	2 Blood Pressures	0.73	1.0 [0.6-1.5]	1.2 [0.7-1.8]	0.9 [0.5-1.3]
	Antihypertensive drug	0.25	0.7 [0.4-1.0]	0.9 [0.5-1.3]	0.8 [0.5-1.4]
Waist Circumference	Waist Circumference	0.007*	3.7 <sup>†</sup> [1.8-7.8]	2.0 [1.0-4.2]	1.8 [0.8-4.0]
Smoking Cessation	Smoking advice	0.13	1.6 [1.0-2.6]	1.5 [0.8-2.9]	1.0 [0.5-2.1]
	Smoking Program	0.25	2.7 [0.8-9.2]	1.1 [0.4-2.6]	2.6 [0.9-7.3]
	Smoking drug therapy	0.04*	1.5 [0.9-2.5]	0.6 [0.3-1.1]	2.4 <sup>†</sup> [1.3-4.6]

# Comparison of Models

Characteristic	CHC	FFS		Blended Capitation		
		Fee For Service (FFS)	Family Health Group (FHG)	Family Health Network (FHN)	Family Health Organization (FHO)	Family Health Team (FHT)
Year Introduced	1970s	.....	2004	2001	2006	2005
Group Size	Group Practice,	1 Physician	Minimum of 3	Minimum of 3	Minimum of 3	Group Practice
Patient Enrollment	Required, No roster size limit	Not required	Required No Roster Size Limit	Required	Required	Required
Access	Extended office hours	No specified requirements	Extended office hours, THAS	Extended office hours, THAS	Extended office hours, THAS	Extended office hours, THAS
Multidisciplinarity <sup>a</sup>	Extensive	None	None	Some	Some	Extensive

# Primary Care Model Types at Baseline (n = 84)



FFS – Fee For Service

FHN – Family Health Network

FHG – Family Health Group

FHT – Family Health Team

LTC – Long-Term Care

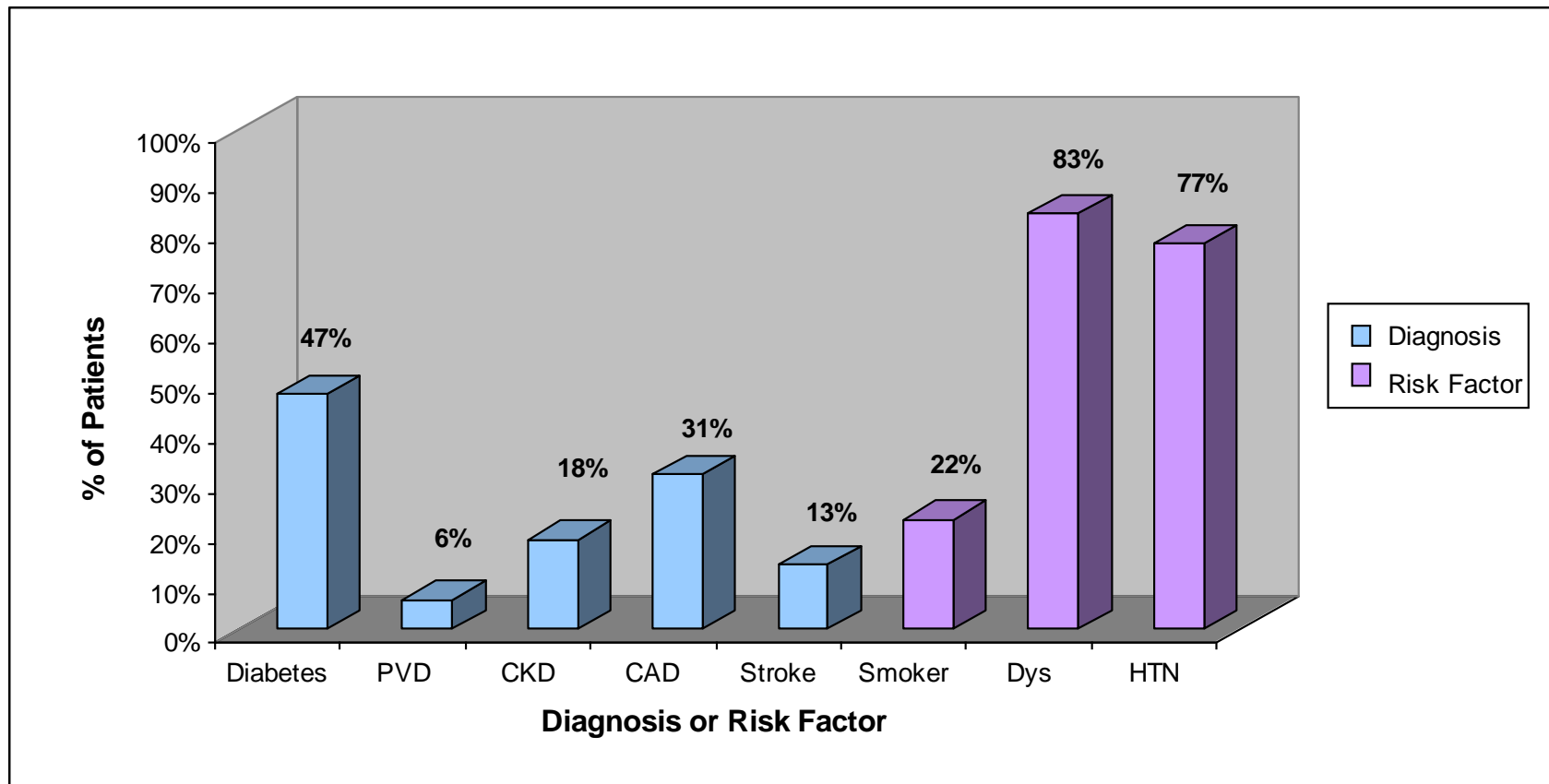
FHO – Family Health Organization,

CHC – Community Health Centre





# Patient Diagnoses & Risk Factors (n = 4,903)



Dys – Dyslipidemia    HTN – Hypertension    CKD – Chronic Kidney Disease  
CAD – Coronary Artery Disease    PVD – Peripheral Vascular Disease

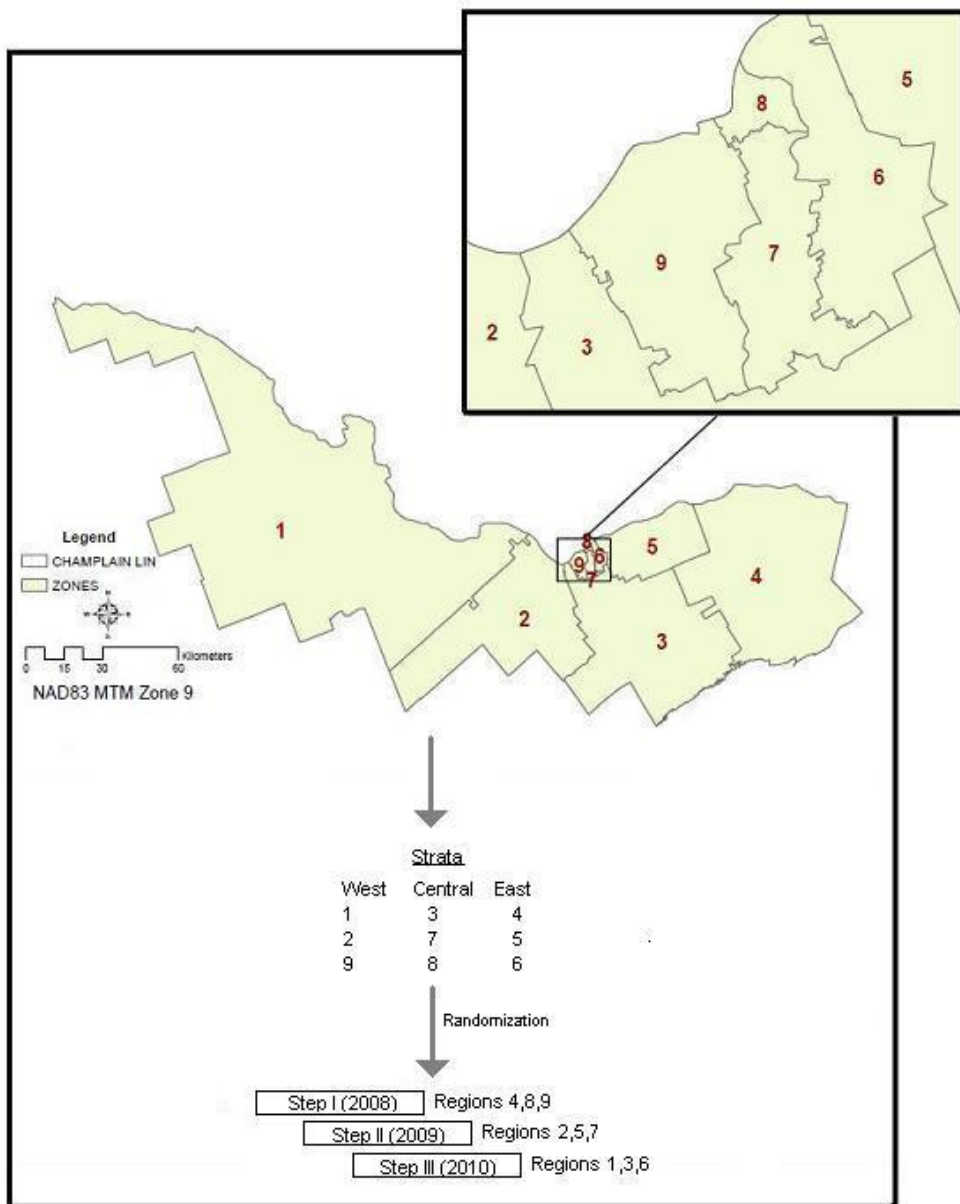
# Breakdown of Practices by Model

<b>Model Type*</b>	<b># of practices</b>
FHG	38
TFFS	5
CHC	12
FHT	7
FHN	5
FHO	15



# Primary care breakdown in Ontario

- Community Health Centres – stable, 200 docs
- Fee-for-service – declining, fewer than 1,000 docs
- Enhanced Fee-for-Service
  - Comprehensive Care Management (CCM) – stable, ~1,000
  - Family Health Groups (FHGs) – stable, ~4,500 docs
- Blended, primarily capitation
  - Family Health Networks (FHNs) – declining, ~500 docs
  - Family Health Organizations (FHOs) – growing, ~1,500 docs
  - Family Health Teams (FHTs) – stable, growth expected



# Patient Eligibility

- Over 40 years of age
- Resident of Ontario
- Patient of a physician who consented to take part in IDOCC
- Seen at least once within the abstraction timeframe
- Has a record in the practice going back 2 years
- Has or is at high risk for developing CVD

# Stepped Wedge Implementation

Step	Total number of participants	Time periods				
		2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
I	26 practices (59 physicians)	Baseline	Intensive phase	Sustainability phase		
II	30 practices (79 physicians)		Baseline	Intensive phase	Sustainability phase	
III	27 practices (53 physicians)			Baseline	Intensive phase	Sustainability phase

- Shaded cells represent intervention periods
- Blank cells represent control periods