Comparison of Primary Care Models in the Prevention of Cardiovascular Disease

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PHCS Research Rounds
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Road Map

- IDOCC project overview

- *What are the differences in quality of care delivery?*

- *Are there difference in referral rates?*

- Relevance to policy

Research team

➢ Principal Investigators: Clare Liddy & William Hogg,

➢ Co-Investigators: Ayub Akbari, Catherine Deri Armstrong, Simone Dahrouge, Jeremy Grimshaw, Grant Russell, George Wells

➢ Program Coordinator: Alex Cornett

➢ Research Manager: Jatinderpreet Singh

➢ Outreach Facilitators: Dianne Laferriere, Kate Nash, Olga Nikolajev, Eileen Vilis

➢ Chart auditors: Joan Duguid, Joan Evans, Ann Jensen, Brenda Staples

Improved Delivery of Cardiovascular Care (IDOCC) through Outreach Facilitation

➢ Innovative primary care quality improvement project

➢ Conducted in 83 practices across Eastern Ontario from 2007-2012

➢ Aim: assist family practices improve their delivery of evidence-based CVD care

➢ Target: Patients with or at high risk for CVD

Outreach Facilitation=**to make easy**

- Practice facilitator, practice coach, practice enhancement assistant are other names
- "Knowledge brokers" of evidence-based information processes, tools, and skills
- Partners in change
- Support/ Assist practices through the "journey of change"
- Flexible, multifaceted, tailored

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Improved
Delivery of

Improved Delivery of Cardiovascular Care (IDOCC) through Outreach Facilitation

- 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

IDOCC Intervention

- Two year outreach facilitation intervention

Baseline	Y1: Intensive Facilitation	Y2: Sustainability

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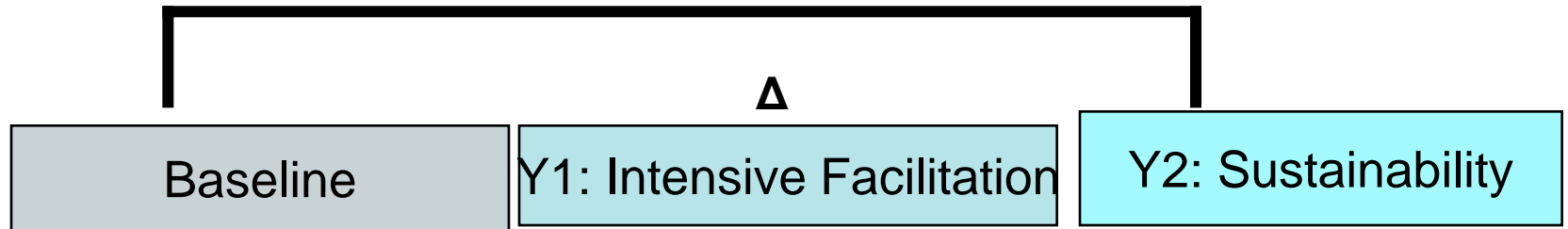
- Evaluation: Pre- and post-implementation chart audit on same group of randomly selected patients to examine adherence to Champlain CVD Prevention and Management Guideline
- Stepped wedge design allows for control group comparison
- Randomized at the level of the region

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Primary Outcome

- **Does facilitation improve adherence to guidelines for CVD patients?**

$$\text{QOC Score} = \frac{\sum \text{ of recommended care manoeuvres performed}}{\sum \text{ of recommended care manoeuvres for which the patient was eligible}}$$

- Quality of care (QOC) composite score reflecting practice adherence to recommended care guidelines
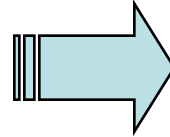
Methods

Practice Recruitment

- Open to all primary care model types in the Champlain Region of Ontario (except walk-in clinics)

- Approached: 533 Practices

- Current Participants: 83 Practices, 191 Physicians

Patient Eligibility

- Patients over the age of 40 with at least one of the following:
    - Coronary Artery Disease
    - Peripheral Vascular Disease
    - Stroke/Transient Ischemic Attack
    - Diabetes
    - Chronic Kidney Disease
    - 3 or more cardiovascular risk factors

IDOCC Dataset

➢ Repeated chart audits of same randomly selected patient group from each practice - 60 charts/practice

➢ 84 practices included in study (180 family doctors)

➢ Data collected includes:

  1- Diagnostic and screening information

  2- Drug prescription information

  3- Clinical test results (blood pressure, cholesterol, etc)

  4- Counselling and referral to programs

Secondary Analysis of IDOCC Baseline data

- Baseline Data
  - *What is the quality of care delivery for high risk CVD patients?*

- Comparison of Models
  - *What are the differences in quality of care delivery?*
 - *What are the differences in referral rates?*

Baseline results

➢ Baseline data was collected from 4,837 patient medical charts

➢ 46.6% of the patients had diabetes and 30.6% had coronary artery disease

➢ Risk Factors:
  ➢ 21.0% were smokers
  ➢ 76.8% had hypertension
  ➢ 83.2% had dyslipidemia

Baseline adherence to process of Care

Condition/Risk Factor	Process of care (over 1 year)	% Receiving care
All patients (n = 4,837)	1 Blood Pressure Measurement	92.9%
	Lipid Profile Recommended	77.6%
	Waist Circumference Recorded	9.7%
Smokers (n = 1,018)	Smoking Cessation Counselling	53.1%
	Referral to a Cessation Program	7.9%
Diabetes (n = 2,255)	2 Hemoglobin A1c Measurements	54.0%
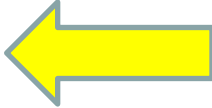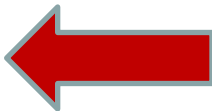
Baseline Results

➢ Treatment for blood pressure and cholesterol were high; however, less than half of patients were at target levels

➢ Adherence to preventive care recommendations including smoking care and waistline measurement was <u>poor</u>

➢ Hemoglobin A1c screening for patients with diabetes was <u>poor</u>

Significant opportunities for improvement

Objective 1

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

Liddy C, Singh J, et al. Comparison of primary care models in the prevention of cardiovascular disease - a cross sectional study. *BMC Fam Pract* 2011 October 18;12(1):114.

Primary Care Models

Fee for Service (FFS): n = 43

➢ Payment on a per service basis
➢ Single disciplinary
➢ Traditional FFS, reformed FFS (Family Health Groups)

Blended Capitation: n = 27

➢ Base payment for each enrolled patient
➢ Some practices receive government support for other health professionals
➢ Family Health Networks, Family Health Organizations, Family Health Teams

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

➢ Fixed salary
➢ Multidisciplinary 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 ($p < 0.017$)

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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%

Discussion

➢ HbA1c monitoring highest in CHCs
  ➢ Findings similar to other Ontario and US studies

➢ Smoking care strongest in blended capitation practices
  ➢ Due in most part to performance of FHTs

➢ CHCs least likely to recommend smoking cessation drugs
  ➢ Champix and Zyban not covered by Ontario Drug Benefit Plan until 2011

➢ Waistline measure highest in blended capitation - low overall
  ➢ Good example of how long it takes to get research into practice

Other Studies in Ontario

➢ Tu et al. (2009): Capitation physicians had best treatment and control rates for hypertension

➢ Russell et al. (2009): Diabetes care superior in CHCs

➢ Hogg et al. (2009): Health promotion higher in CHCs

➢ Glazier et al. (2009): compared to patients in FFS, capitation practices had less after hours care, more visits to ER

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

Relevance to Policy

➢ There are important differences in quality of CVD care across primary care models in Eastern Ontario

➢ Gaps in care for diabetes, smoking care, and waistline screening

➢ Blood pressure and lipid care high across models

➢ FFS practices had biggest gaps in adherence to guidelines

➢ Findings support current reforms to move away from FFS model

Objective 2

Compare specialist referral patterns between different primary care models in Ontario, Canada

Approach

➢ **Data Source:** Administrative databases housed at the Institute for Clinical Evaluative Sciences (ICES)

➢ **Target:** All active primary care physicians between April 1st, 2009 to March 31st, 2011

➢ **Outcome:** # of referrals per 1000 patients/year

➢ **Three primary care models:**
- ❑ Fee-for-service (FFS) – FHGs and CCM
- ❑ Capitation (Non-FHT) – FHNs and FHOs
- ❑ Capitation (FHT) - FHT

Preliminary Findings

Model	All Specialties	Cardiovascular Specialties	Endocrinology
FFS	825	125	10
Capitation	817	125	9
FHTs	765	114	6

Referral rates = # of referrals per 1000 patients/year

Discussion

➢ FHTs had the lowest referral rates to specialists

➢ Other factors that influenced referral rates included:
  ➢ patient health, age, and sex
  ➢ Provider age
  ➢ Rurality

➢ Next Steps: Conduct a regression analysis controlling for patient, provider and practice characteristics

Our Partners

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Publication Citations:

Liddy C, Singh J, Hogg W, Dahrouge S, Taljaard M. Comparison of primary care models in the prevention of cardiovascular disease - a cross sectional study. *BMC Fam Pract* 2011 October 18;12(1):114.

Liddy C, Hogg W, Russell G et al. Improved Delivery of Cardiovascular Care (IDOCC) through Outreach Facilitation: Study protocol and implementation details of a cluster randomized controlled trial in primary care. *Implement Sci* 2011 September 27;6(1):110.

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