The effectiveness and cost of financial incentives for cancer screening among primary care physicians in Ontario

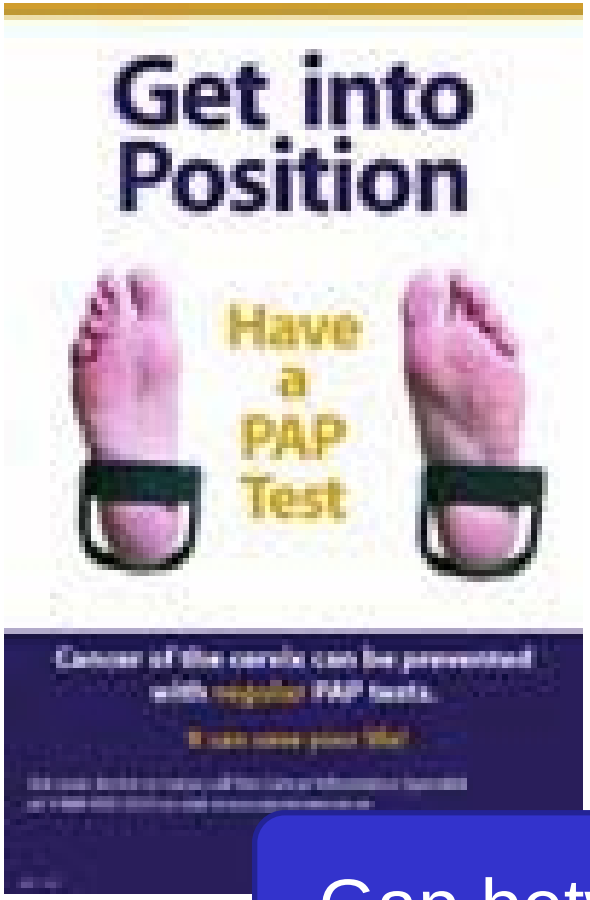
Tara Kiran, MD, MSc, CCFP
Staff Physician, Family & Community Medicine, St. Michael's Hospital
Associate Scientist, Li Ka Shing Knowledge Institute, St. Michael's Hospital
New Investigator, Family & Community Medicine, University of Toronto

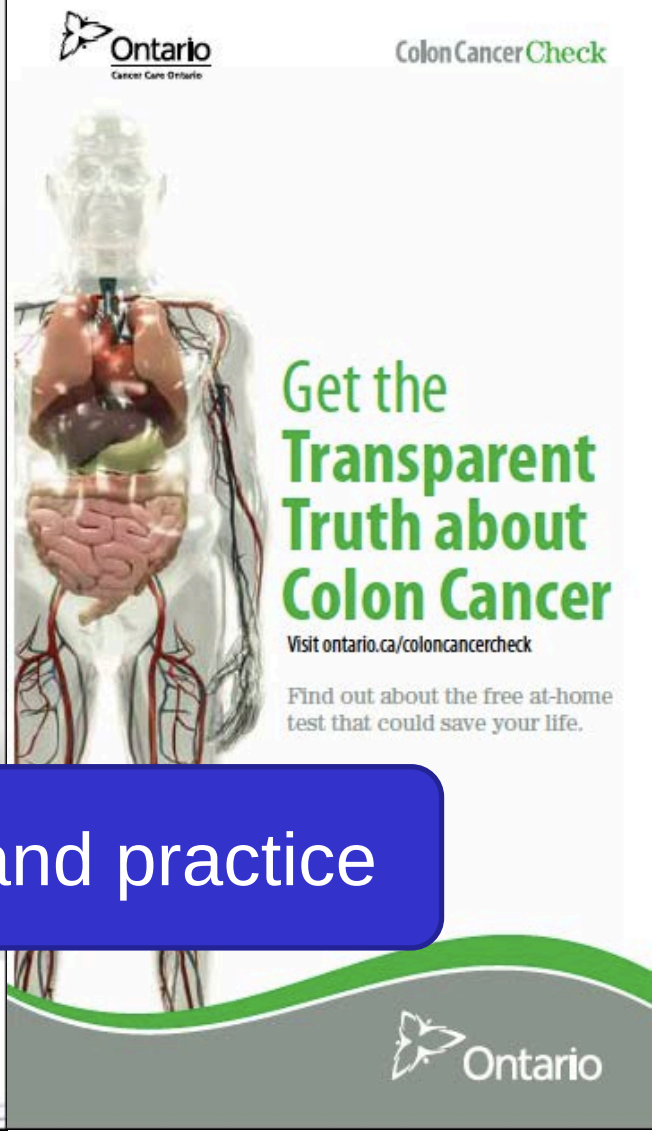
Rick Glazier, MD, MPH, CCFP, FCFP
Scientist, Institute for Clinical Evaluative Sciences
Scientist, Centre for Research on Inner City Health, St. Michael's Hospital
Professor, Family and Community Medicine, University of Toronto and
St. Michael's Hospital

PHCS Program Research Rounds
May 17, 2012

Acknowledgements

- Drew Wilton
- Lawrence Paszat





Gap between evidence and practice

Enhancing the effectiveness of health care for Ontarians through research

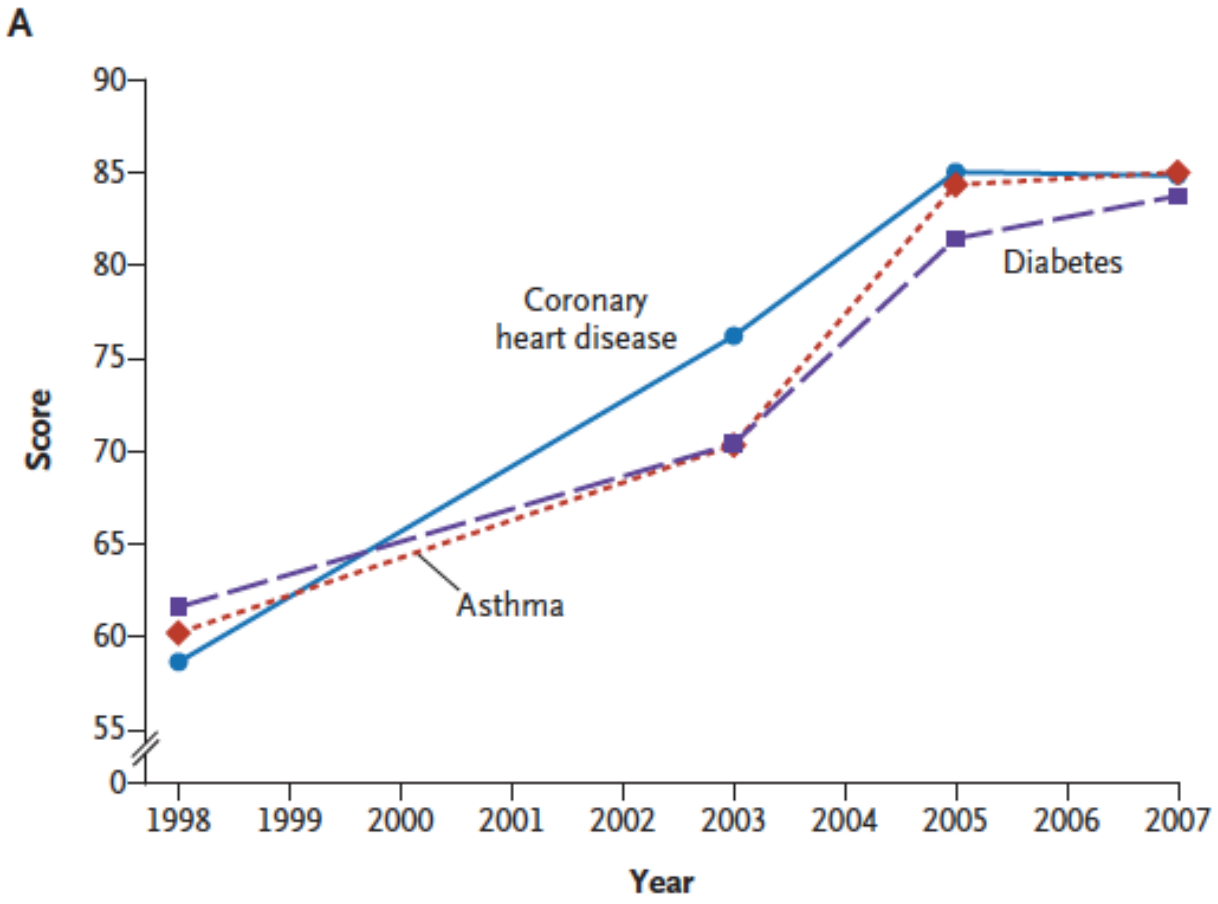
ICES Institute for Clinical Evaluative Sciences

How can we improve quality of care?

Evidence for financial incentives

- **Scott et al. 2011 Cochrane Review**
  - **7 studies reviewed: "insufficient evidence to support or not support the use of financial incentives to improve quality of primary health care"**
- **Campbell et al. 2009 New England Journal of Medicine**
  - **Effect of P4P on quality of primary care in UK: some acceleration of improvements but rate slowed once targets reached**

Effects of P4P in the UK



Campbell et al.
2009 NEJM

Incentives for Cancer Screening in Ontario

	Eligible patients	Fee codes	Self-reported target achieved	Financial value	Year introduced (Primary care enrollment model)
Cervical Cancer Screening	Women 35-69# who received a pap test in the last 30 months	Q105 Q106 Q107 Q108 Q109	60% 65% 70% 75% 80%	$220 $440 $660 $1,320 $2,200	April 1, 2002 (FHN) April 1, 2007 (FHG**, CCM**, FHO)
Breast Cancer Screening	Women 50-69# who received a mammogram in the last 30 months	Q110 Q111 Q112 Q113 Q114	55% 60% 65% 70% 75%	$220 $440 $770 $1,320 $2,200	April 1, 2002 (FHN) April 1, 2007 (FHG**, CCM**, FHO)
Colorectal Cancer Screening	Adults 50-74# who received a Fecal Occult Blood Test in the last 30 months	Q118 Q119 Q120 Q121 Q122^ Q123^	15% 20% 40% 50% 60% 70%	$220 $440 $1,100 $2,200 $3,300 $4000	April 1, 2006 (FHN, FHG**, CCM**) April 1, 2007 (FHO) ^March 31, 2009 (FHN, FHO, FHG, CCM)

- Eligible physician can bill once in fiscal year
- Based on physician self-report

Impact of Incentives in Ontario?

- Hurley et al. examined effect of incentive on screening uptake among physicians *eligible* for incentive *(efficacy)*
  - 7.0% increase in cervical cancer screening
  - 2.7% increase in breast cancer screening
  - 56.7% increase In colorectal cancer screening
- What was the impact of incentives on the entire population?

Our Objectives

1) Assess uptake of cervical, breast, and colorectal cancer screening in Ontario
   - Patient characteristics: FY2009
   - Uptake: FY2000 to FY2009
2) Assess use & cost of cancer screening incentives
   - Characteristics of MDs who billed highest incentive category and those who billed no code: FY2009
   - Use of the incentive codes & cost: FY2000 to FY2009
3) Assess effectiveness of incentives in improving uptake of cancer screening

Data Sources

- **Linked administrative data from ICES**
  - **Registered persons database**
  - **OHIP claims**
  - **Discharge abstract database**
  - **Corporate provider database & ICES physician database**
  - **Client agency program enrollment tables**

Screening definitions

Cervical: women 35-69 who received a pap smear in 30 months prior to March 31 of fiscal year (exclusion: hysterectomy)

Breast: women 50-69 who received a mammogram in 30 months prior to March 31 of fiscal year (exclusions: mastectomy, breast cancer)

Colorectal: adults 50-74 who received either FOBT in 30 months prior to March 31 of fiscal year or who had colonoscopy in previous 10 years (exclusion: colon cancer)

Primary Care Model

Model enrollment FY2009:

- **Rostered patients**
  - **FHG – enhanced fee-for-service**
  - **FHN/FHO/PCN – non-team capitation**
  - **FHT – team-based capitation**
- **Virtually rostered patients**
  - **if not rostered on Aug 31, 2008**
  - **value of 18 primary care codes**
  - **assigned to primary care physicians in and not in models**

Costs

- **Costs = (Bonus Code x Value) + (Other cancer screening code x Value)…**

- **E.g for Colorectal incentives in 2007**

  Costs = (# of Q118 x $220) + (# of Q119 x $440) + (# of Q120 x $1100) + (# of Q121 x $2200) + (# of Q005 x $6.86)

Results

Screening Uptake FY2009

Cervical:

- Eligible 3,056,337; Uptake 57%
- Older women less likely to be screened

Breast:

- Eligible 1,600,645; Uptake 62%
- Younger women less likely to be screened

Colorectal:

- Eligible 3,713,963; Uptake 51%
- Younger adults less likely to be screened

Results

Screening Uptake FY2009

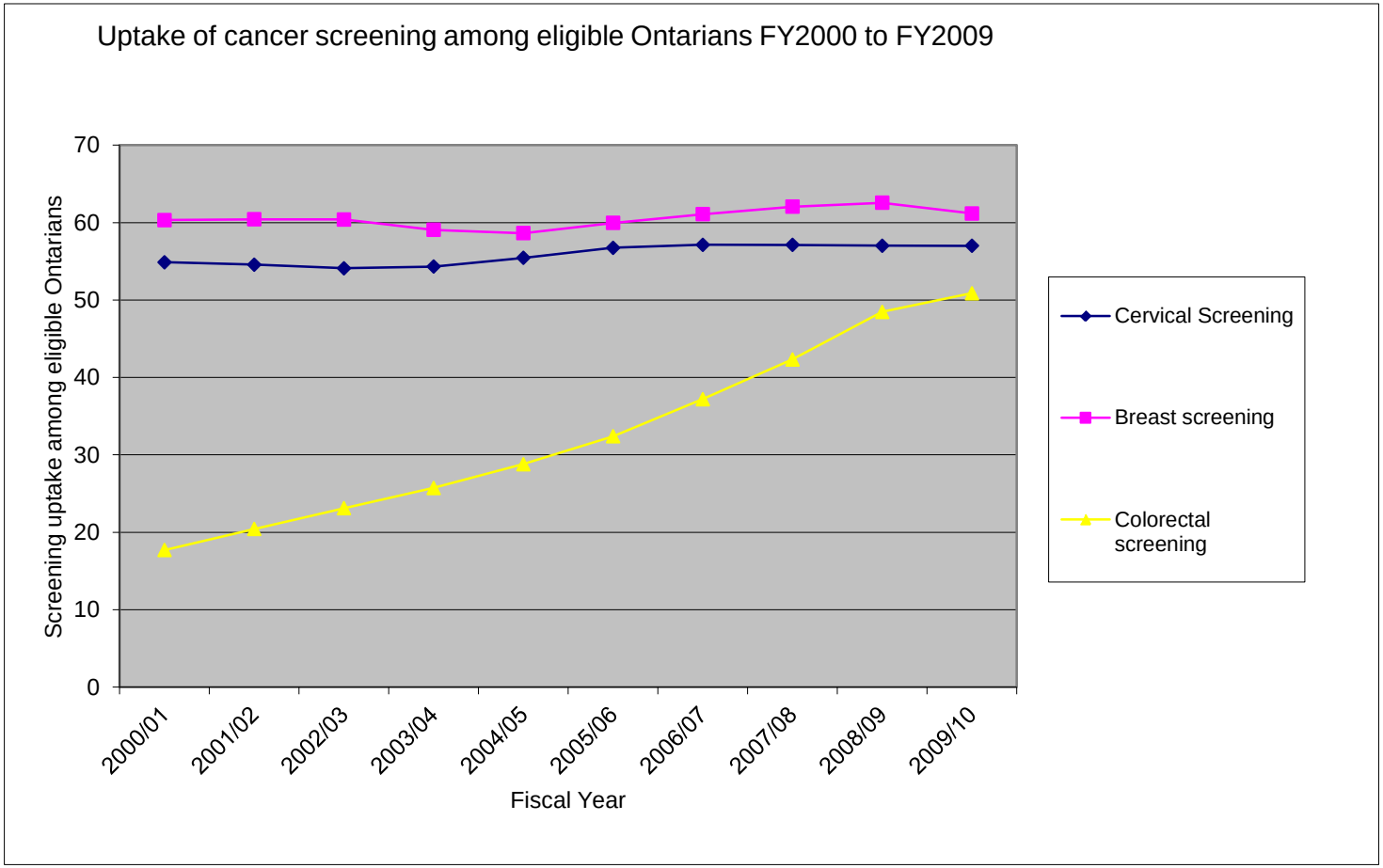
- **Lower uptake of all screening tests among:**
  - Lower income quintile (gradient)
  - New residents (proxy for immigration)
  - Rural residence
  - Patients not in a Primary Care Enrollment Model

Results

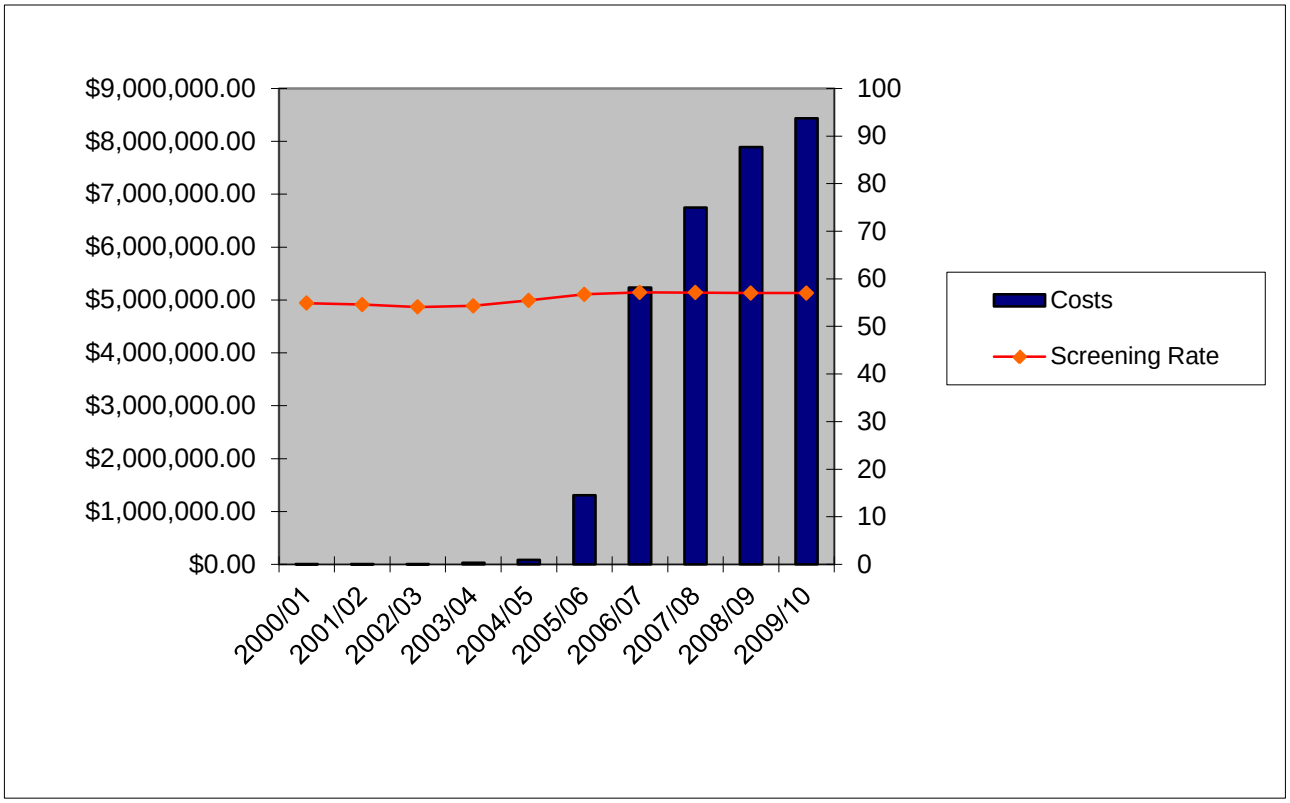
Uptake of Incentives FY2009

- 5946 eligible MDs; 51% blended capitation
- 22% billed highest payment category for all 3 incentives
- 16% did not bill any of the 3 incentive codes. More likely to be:
  - Older
  - Male
  - International Medical Graduate
  - Group of 100+ MDs
  - Enhanced FFS
  - Lower screening uptake

Screening uptake over time



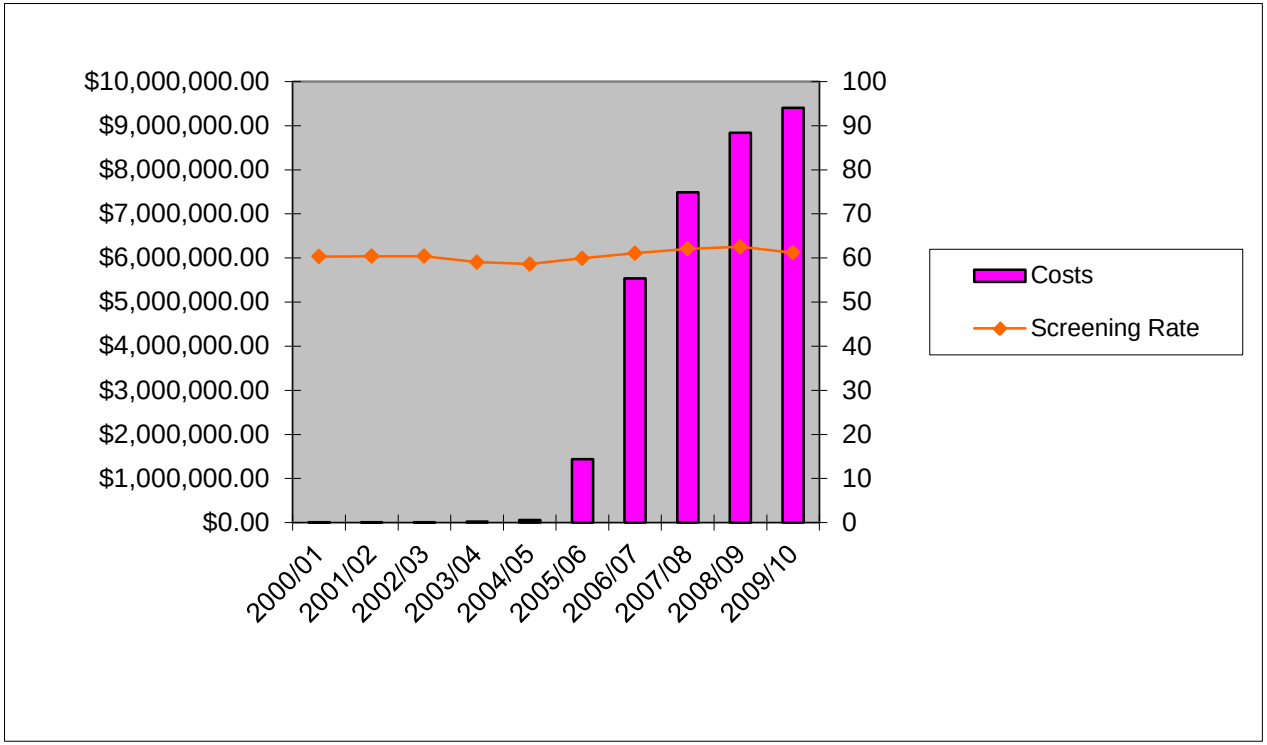
Cervical screening and incentive costs



Annual expenditure FY2009: $8.4 million

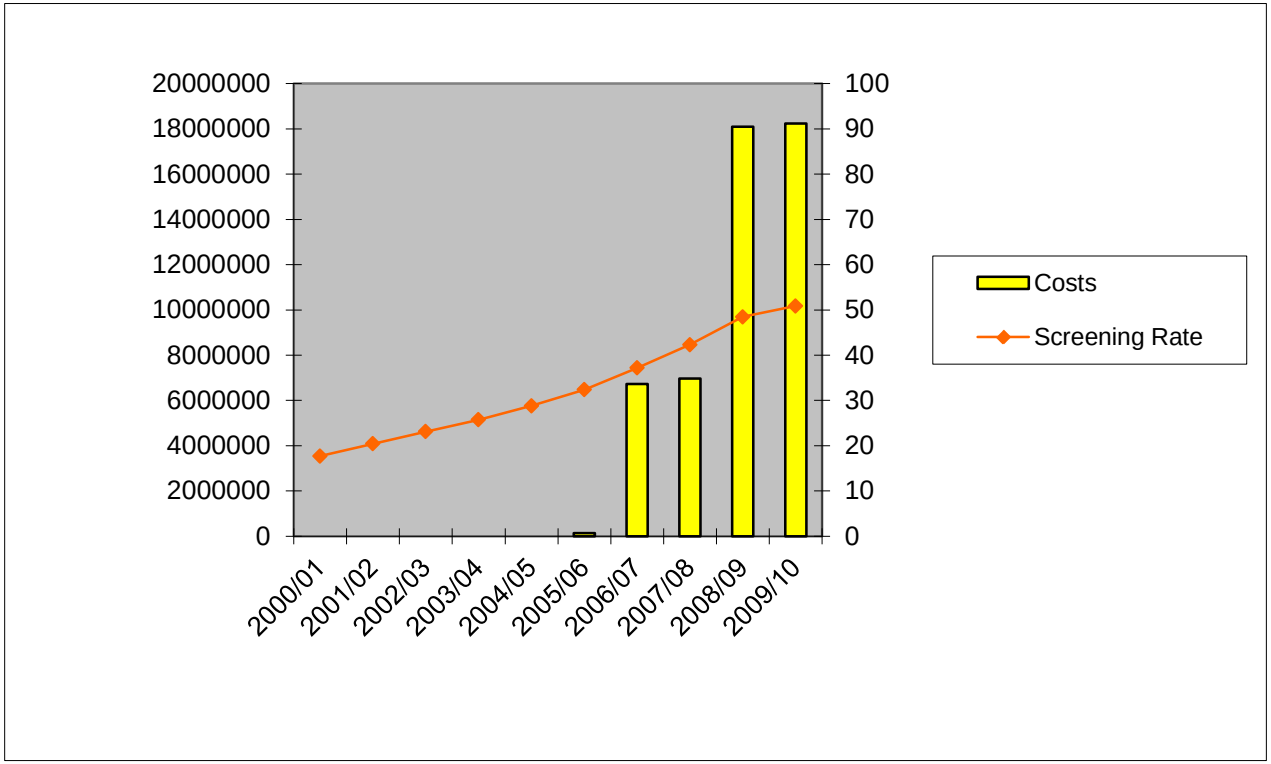
Total expenditures FY2005 to FY2009: $29.6 million

Breast screening and incentive costs



Annual expenditure FY2009: $9.4 million
Total expenditures FY2005 to FY2009: $32.7 million

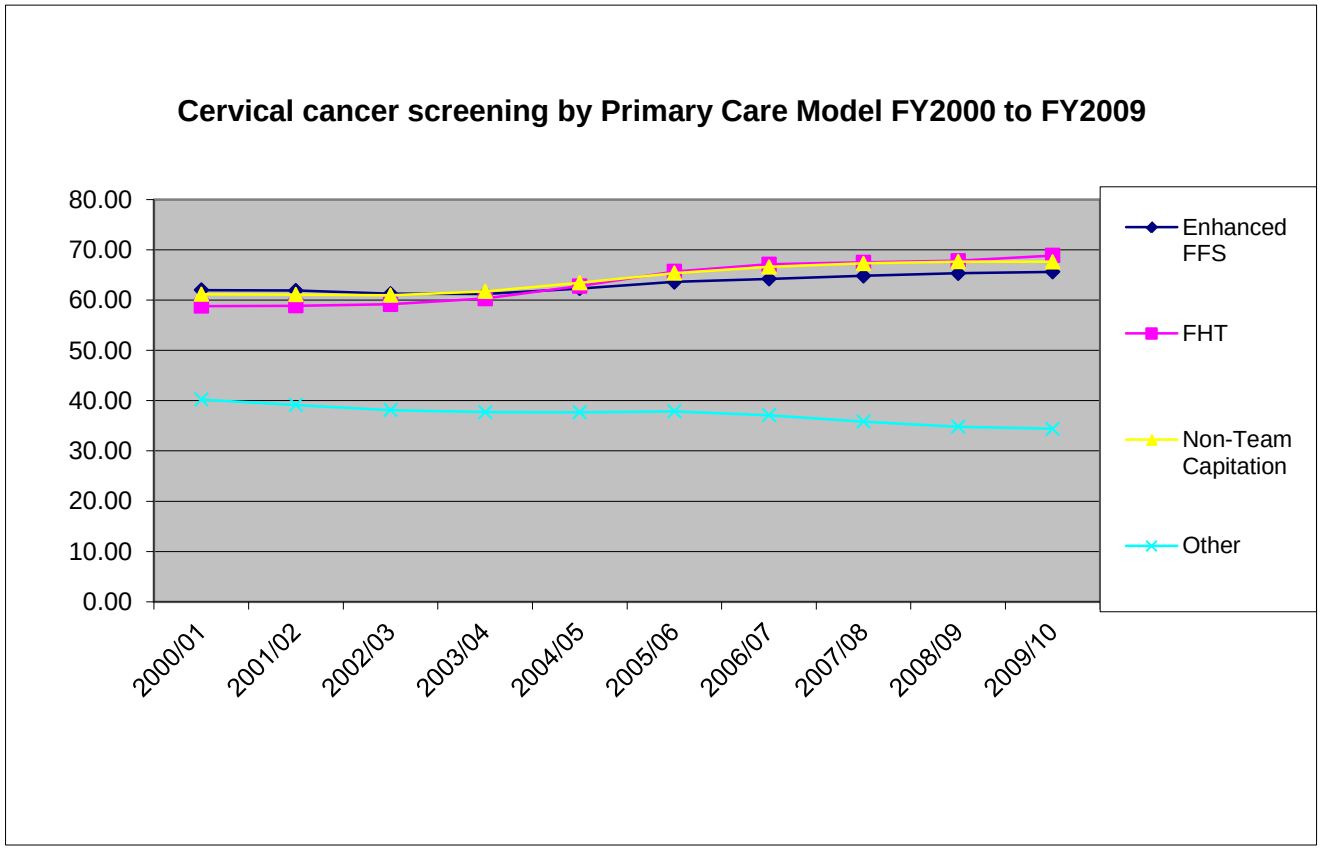
Colorectal screening and incentive costs



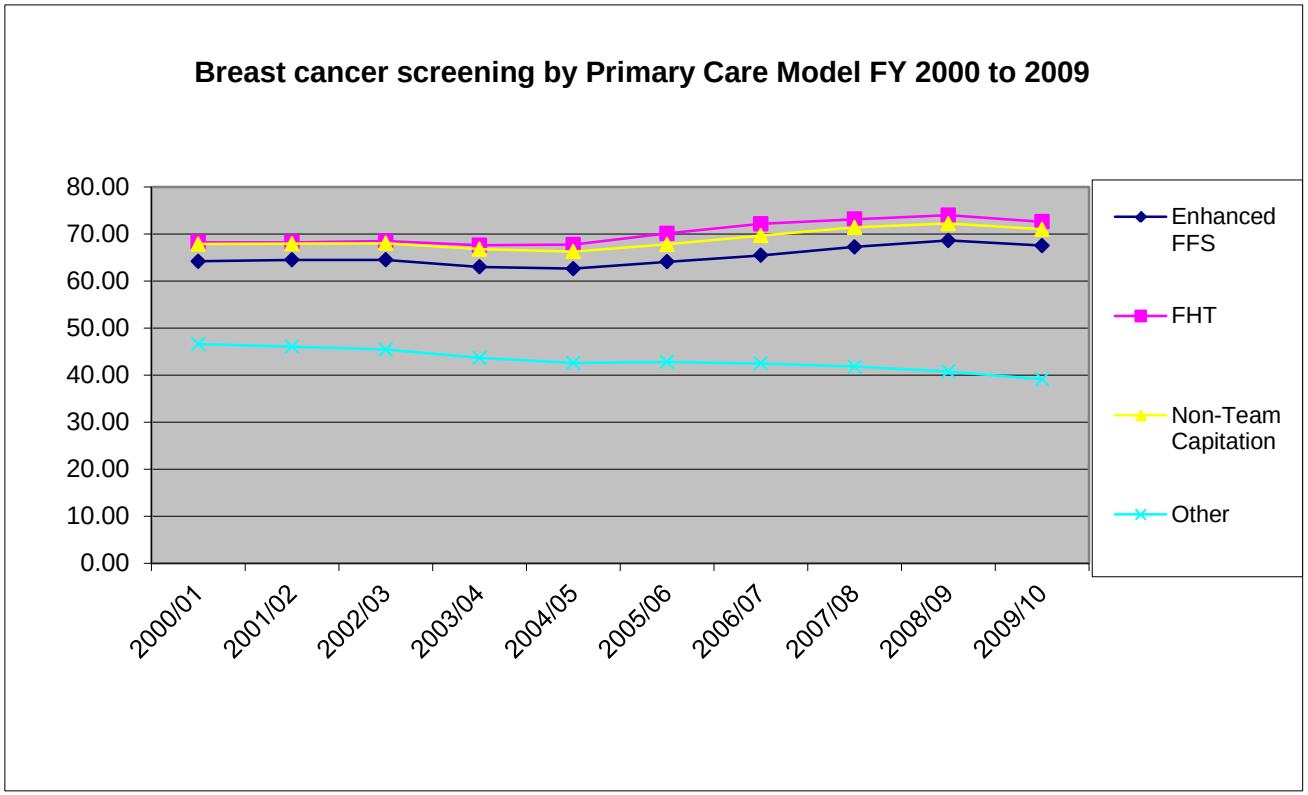
Annual expenditure FY2009: $18.2 million

Total expenditures FY2005 to FY2009: $50.2 million

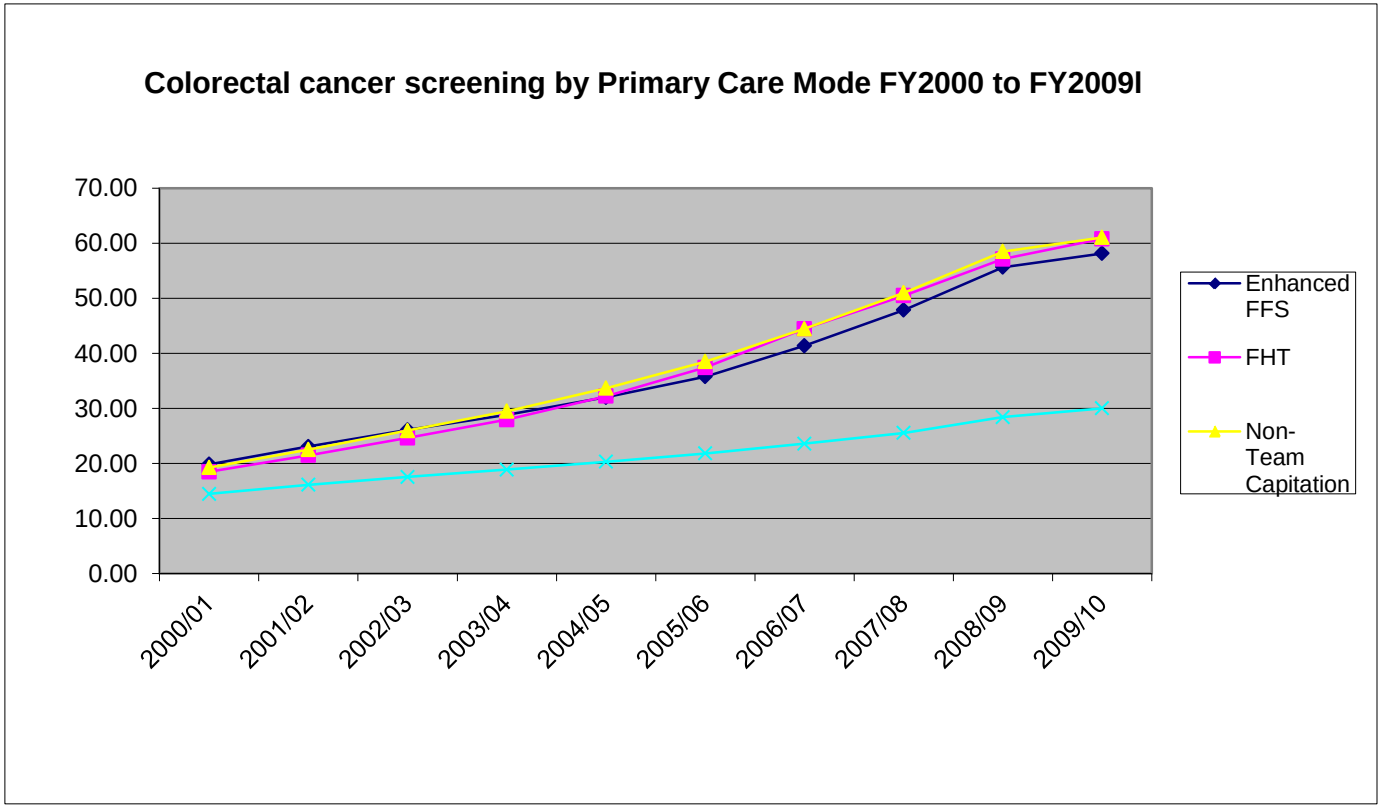
Cervical screening by Primary Care Model



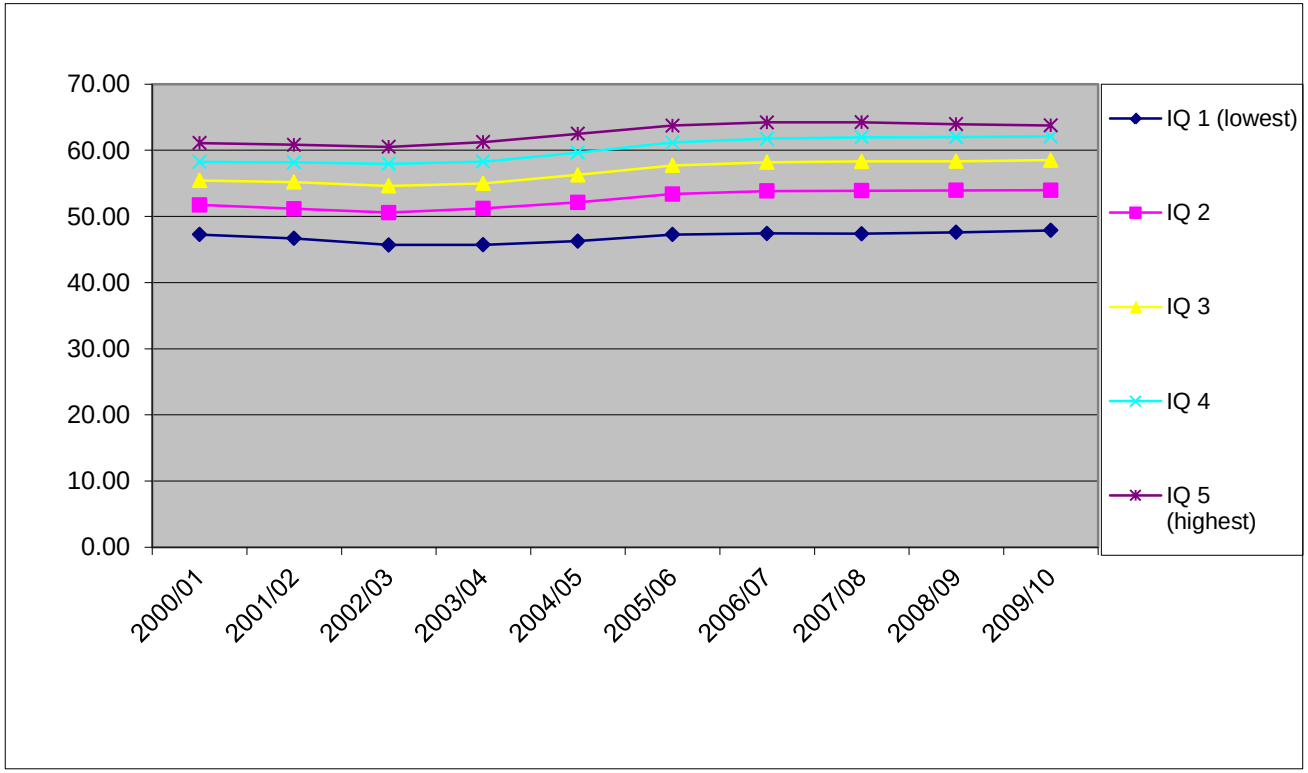
Breast screening by Primary Care Model



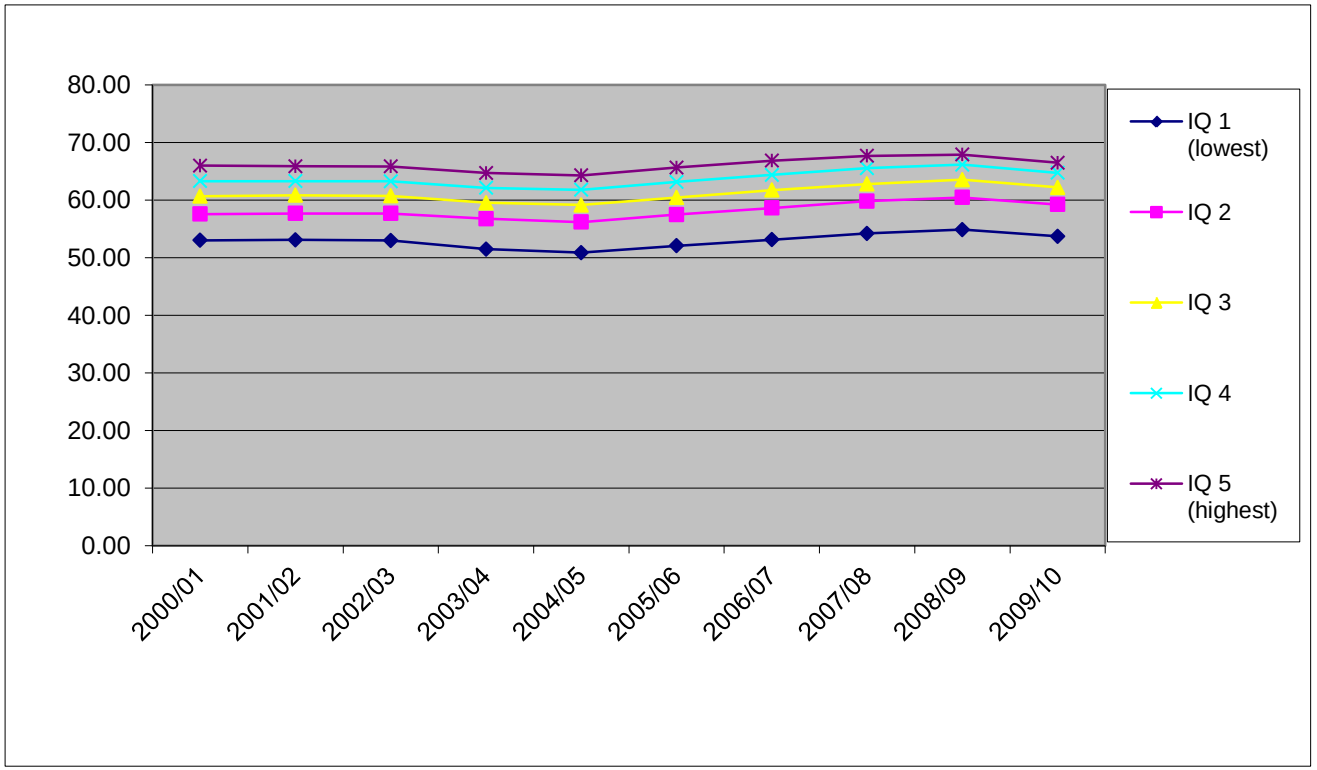
Colorectal screening by Primary Care Model



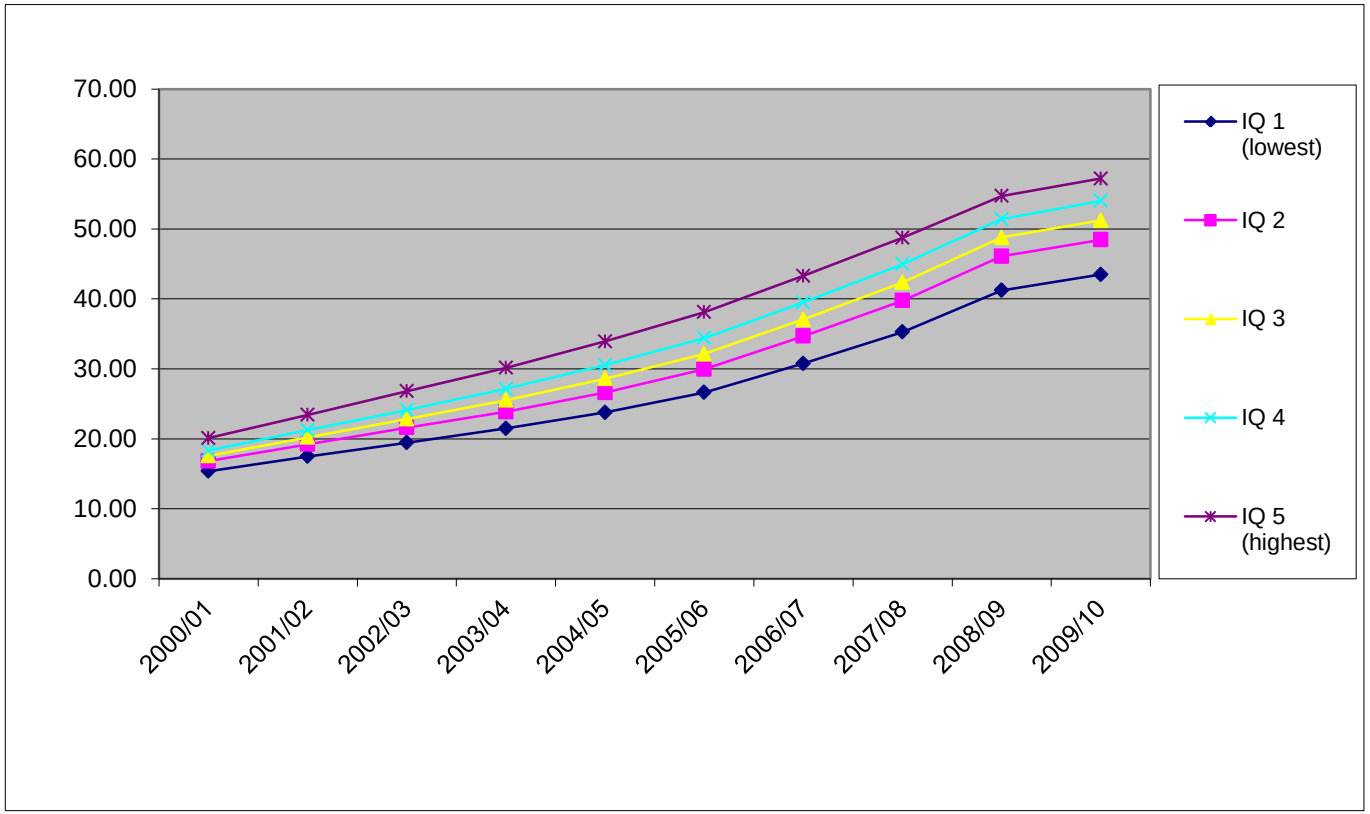
Cervical screening by Income Quintile



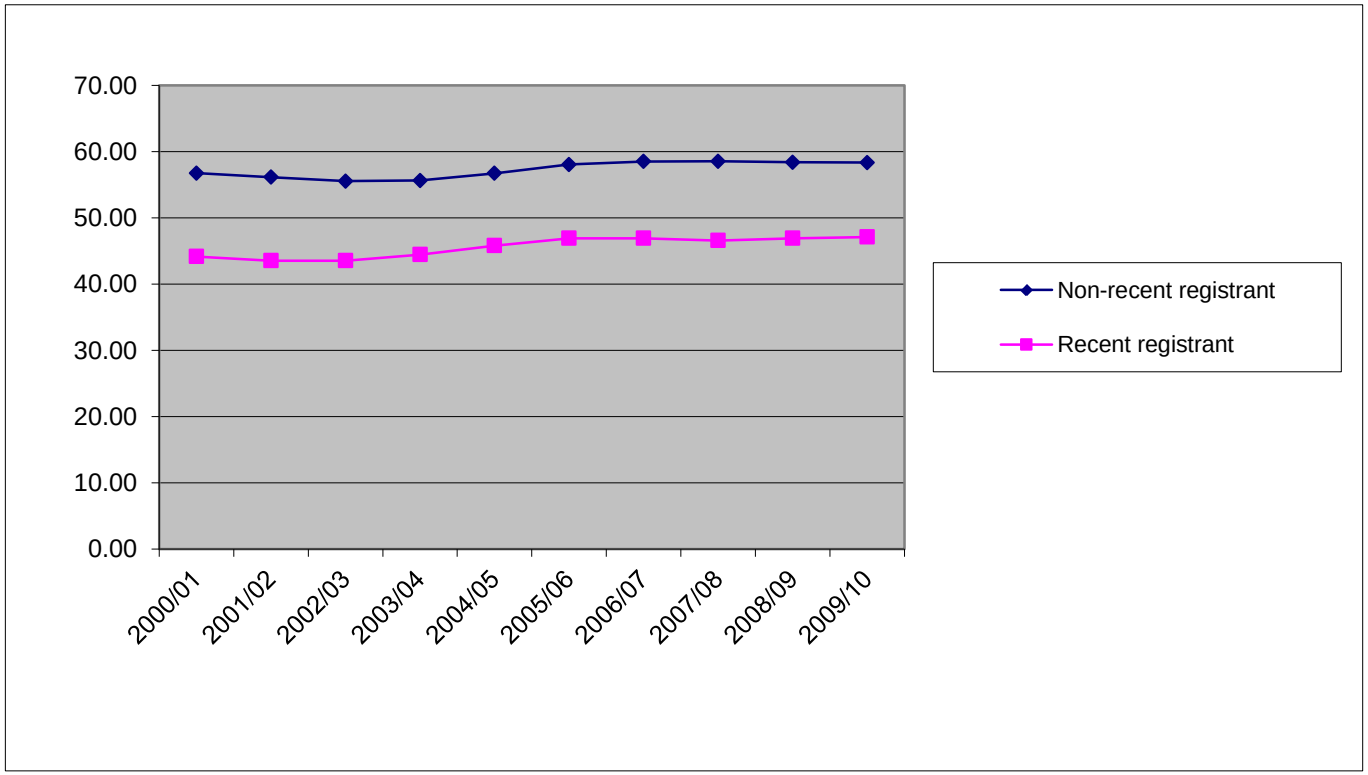
Breast screening by Income Quintile



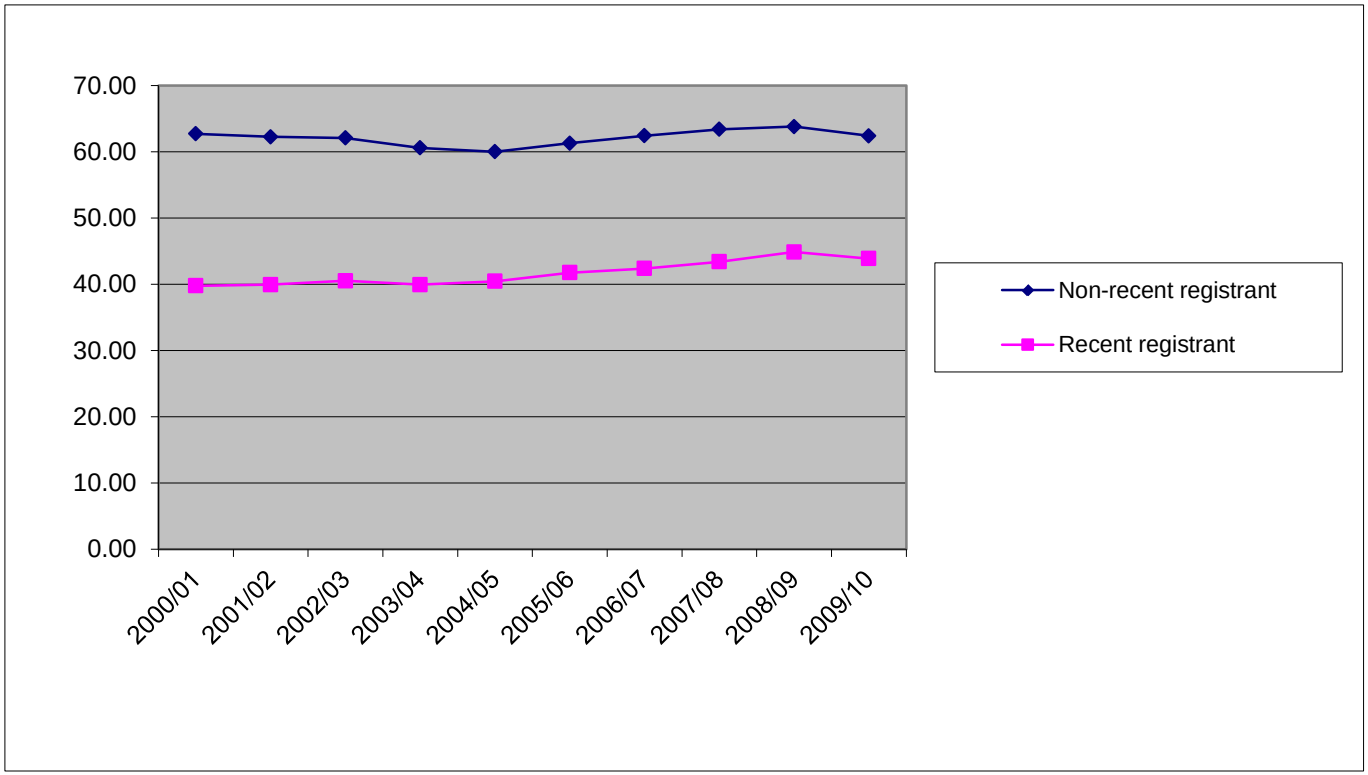
Colorectal screening by Income Quintile



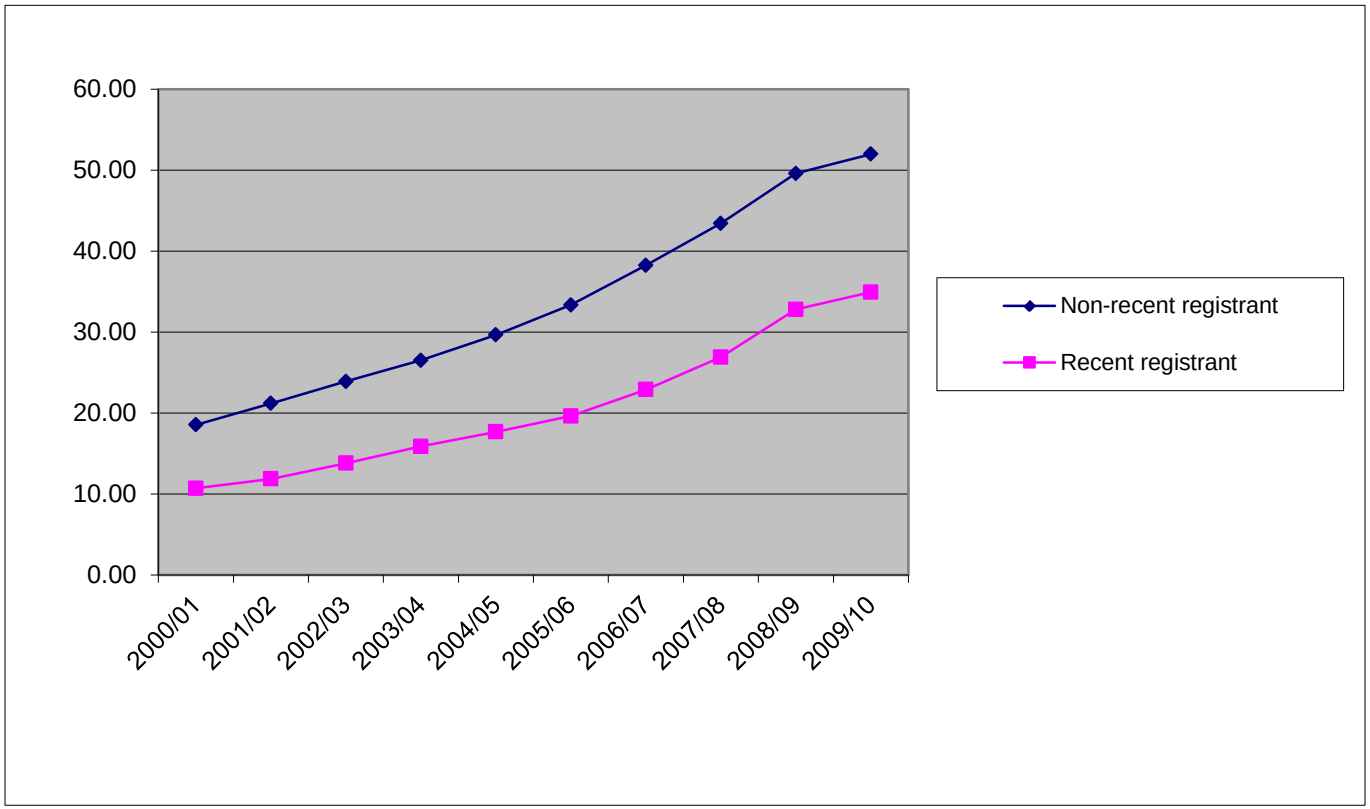
Cervical screening by Recent Registration



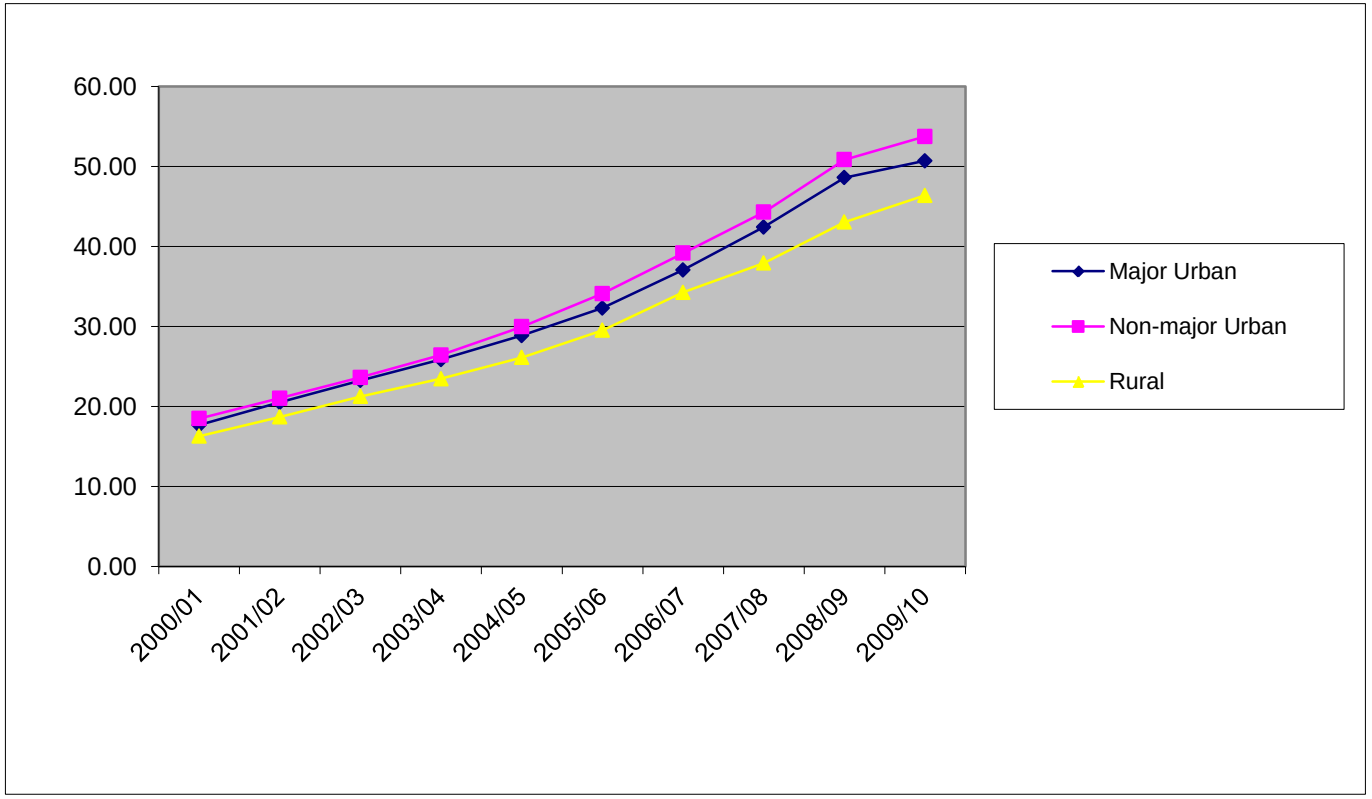
Breast screening by Recent Registration



Colorectal screening by Recent Registration



Colorectal screening by Rurality



Summary of Findings

- Minimal increase in cervical or breast cancer screening from 2000 to 2010
- Increase in colorectal cancer screening but rate of increase similar before and after incentives introduced
- Patients not in PEM had lower screening rates
- Worsening disparities in colorectal screening (income, recent residence, rurality)
- Substantial expenditure on incentives

Interpretation

- Limited impact of financial incentives on cancer screening rates in Ontario despite good uptake of incentives
- Incentives directed at physicians who historically had higher screening rates

Limitations

- **Limits of administrative data**
  - **Does not include screening data from public hospitals**
- **Observational study**
  - **Cannot isolate impact of incentives from other interventions**
  - **Cannot definitively address causation**

Screening Uptake

- **Factors influencing uptake:**
  - **Shifting MD mindset from an opportunistic to a planned, proactive approach**
  - **Information systems to support planned approach**
- **Evidence-based interventions for increasing screening:**
  - **Organizational changes (e.g. standing orders, staffing changes)**
  - **Patient or provider reminders**
  - **Patient financial incentives**

Disparities in screening

- **Countries with population-based screening have less socioeconomic inequalities (Palencia et al. Int. Journal of Epidemiology 2010)**

- **UK: Population-based cervical screening 1988, financial incentives 1990**
  - **Higher uptake and reduced SES disparities**
- **UK: Recent population-based colorectal screening pilot**
  - **Increased SES disparities**

- **Different approach likely needed for some populations**

Policy Implications

- Insufficient evidence that financial incentives should be used to improve quality of primary care
- Future research and policy interventions should likely target:
  - Primary care physicians not in an enrollment model
  - Patients who are lower income, new immigrants, living in rural areas
- Policy-makers should consider expanding population-based screening programs but be mindful on differential uptake among groups
- New interventions should be evaluated