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Institute of Health Policy, Management & Evaluation
UNIVERSITY OF TORONTO

Establishing the representativeness of physician and patient respondents in the Ontario QUALICOPC study using administrative data

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Outline

Background
- Primary care and survey research in health services
- The QUALICOPC Survey

Purpose and Research Questions

Methods
- Overview of methods
- Creation of comparison groups

Results
- Physician Respondents
- Patient Respondents
- Physician Rosters

Conclusions

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Primary care and survey research

- Ongoing primary care reform in Canada and around the world has spurred a need for comprehensive and meaningful measurement of primary care performance

- Surveys are an important source of information in health services research, policy, and planning

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Surveys and nonresponse bias

- Physician surveys often have low response rates
- Patient surveys depend on recruitment and sampling technique
- Nonresponse bias occurs when there is a systematic difference between those who respond and those who do not respond to a survey

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Quality and Costs of Primary Care (QUALICOPC) Survey

QUALICOPC is an international study investigating the quality, equity, and costs of primary care in over 30 countries, including Canada.

Physicians completed a physician and practice survey. In Ontario, primary care physicians were recruited from the Ontario College of Family Physicians database. Response rate of 3% in Ontario!

Patients completed patient values and experience surveys. Patients were recruited at the offices of responding physicians using consecutive visit-based sampling.

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Purpose and Research Questions

This study sought to examine the representativeness of physician and patient respondents of the QUALICOPC survey in Ontario.

1. To what extent are the physician respondents representative of other physicians in their practice groups, and other primary care physicians in Ontario?

2. To what extent are the patient respondents representative of other patients in their physicians' rosters, the rosters of their physicians' practice groups, and the general population of Ontario?

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Methods: Overview

QUALICOPC physician and patient respondents linked to administrative databases at the Institute for Clinical Evaluative Sciences (ICES)

Comparison groups for physicians and patients were identified using administrative data

Standardized differences were calculated to compare distribution of variables across physician and patient comparison groups

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Methods: Creation of comparison groups

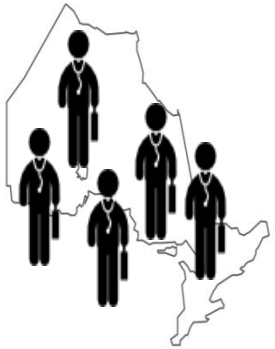
QUALICOPC Physician Respondents

vs.

Physicians in the same practice group as QUALICOPC Physician Respondents

vs.

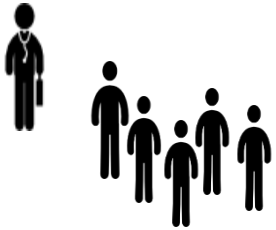
Ontario Primary Care Physicians



QUALICOPC Patient Respondents

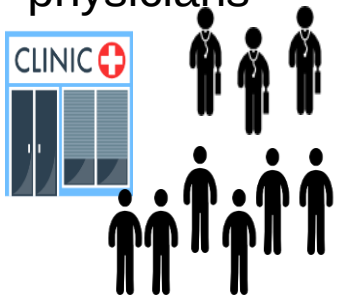
vs.

Patients rostered to QUALICOPC physician respondents



vs.

Patients rostered to the practice groups of QUALICOPC physicians



vs.

Random sample of Ontarians age 18 and over

Results: Physician respondents

	QUALICOPC physician respondents (Group 1) N = 175	PC physicians in responding physicians' practice groups (Group 2) N = 2,507	Ontario primary care physicians (Group 3) N = 9,758	Standardized difference	
				Group 2 vs. 1	Group 3 vs. 1
Sex					
Female	56%	47%	42%	0.18	0.28
Age					
Mean (SD)	49 (10)	51 (11)	51 (12)	0.19	0.20
Canadian medical graduate					
Yes	81%	75%	72%	0.14	0.20
Roster size					
Mean (SD)	1,257 (582)	1,126 (786)	1,120 (1,045)	0.19	0.16
Primary care model					
Solo physicians	6.9%	0	38.0%	-	0.81
FHG	25.1%	44.6%	24.8%	0.42	0.01
FHO	21.7%	16.0%	18.1%	0.15	0.09
FHT	41.7%	36.8%	16.3%	0.10	0.58

Results: Patient respondents

	QUALICOPC patient respondents (Group 1) N = 1,225	QUALICOPC physicians' rosters (Group 2) N = 158,537	QUALICOPC physicians' practice groups' rosters (Group 3) N = 2,270,380	Ontario population (10% SRS) (Group 4) N = 831,056	Standardized difference		
					Group 2 vs. 1	Group 3 vs. 1	Group 4 vs. 1
Sex							
Female	64%	56%	55%	51%	0.16	0.18	0.27
Age							
18 – 44	35%	44%	43%	46%	0.20	0.18	0.24
≥ 65	25%	20%	20%	19%	0.13	0.13	0.16
Material deprivation							
Least deprived quintile	25%	26%	25%	23%	0.01	0.00	0.05
Most deprived quintile	18%	17%	17%	19%	0.02	0.02	0.05
Resource utilization bands (RUBs)							
0 (non-user)	2%	6%	6%	11%	0.20	0.21	0.38
2 (low morbidity)	7%	17%	17%	17%	0.30	0.30	0.31
4 (high morbidity)	24%	15%	15%	13%	0.22	0.23	0.27
Primary care visits in the last year							
Mean (SD)	5.83 (6.24)	3.46 (4.08)	3.69 (4.32)	3.33 (4.38)	0.45	0.40	0.46

Results: Physicians' rosters

	Standardized difference	
	Group practices' rosters vs QUALICOPC physicians' rosters (Group 3 vs. 2)	**Random sample of Ontarians vs QUALICOPC physicians' rosters** (Group 4 vs. 2)
Sex		
Female	0.02	0.11
Age		
18 – 44	0.01	0.05
45 – 64	0.01	0.02
≥ 65	0.00	0.03
Material deprivation quintile		
1 (least deprived)	0.01	0.06
2	0.01	0.04
3	0.01	0.02
4	0.01	0.02
5 (most deprived)	0.00	0.07
Resource utilization bands (RUBs)		
0 (non-user)	0.01	0.20
1 (healthy user)	0.01	0.02
2 (low morbidity)	0.01	0.01
3 (moderate morbidity)	0.01	0.07
4 (high morbidity)	0.01	0.05
5 (very high morbidity)	0.01	0.02

	Standardized difference	
	Group practices' rosters vs QUALICOPC physicians' rosters (Group 3 vs. 2)	**Random sample of Ontarians vs QUALICOPC physicians' rosters** (Group 4 vs. 2)
Rurality Index of Ontario		
< 10	0.18	0.16
10-40	0.11	0.15
40 +	0.15	0.03
Healthcare visits in the last year		
Primary care	0.05	0.03
Emergency department	0.03	0.01
Acute care	0.01	0.02
Chronic Disease		
Asthma	0.00	0.03
COPD	0.00	0.01
CHF	0.00	0.00
Hypertension	0.02	0.04
Diabetes	0.01	0.01

Conclusions

- Physician respondents of the Ontario QUALICOPC differed from their practice groups and other Ontario primary care physicians
- Visit-based sampling led to a biased patient respondent sample (i.e. older, sicker, more likely female)
- Ontario QUALICOPC physician respondents had similar rosters overall compared to their practice groups and the general population

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Conclusions

- While physician and patient-level results are not representative of the entire Ontario population, practice-level inferences are likely valid
- Implications for studies relying on QUALICOPC data as well as other primary care surveys
  - Sampling and recruitment strategies
  - Assessing nonresponse bias

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Thanks!

Questions?

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Appendix: Standardized Differences

- Also known as effect size – provides information about relative magnitude of differences between groups
- Differences between groups are divided by the pooled standard deviation of the two groups
- Not as sensitive to large sample sizes as traditional significance tests
- We use threshold of 0.2, or 20% difference between groups, as a small, but meaningful, standardized difference (Cohen, 1988 as described in Sawilowsky, 2009)

Appendix: Database Analyses

The following administrative databases from the Institute for Clinical Evaluative Sciences (ICES) were used:

Physician Variable	Source
Age	ICES Physician Database (IPDB)
Sex	ICES Physician Database (IPDB)
Years in practice	ICES Physician Database (IPDB)
International medical graduate	ICES Physician Database (IPDB)
Primary care model	Client Agency Program Enrolment (CAPE) tables

Appendix: Database Analyses

Patient Variables	Source
Age	Registered Persons Database
Sex	Registered Persons Database
Material deprivation	Registered Persons Database/Stats Canada
Resource utilization bands (RUB)	ICES Physician Database
Rurality	Client Agency Program Enrolment (CAPE) tables
Primary Care Visits	Ontario Health Insurance Plan (OHIP) billings
Emergency Department Visits	National Ambulatory Care Reporting System (NACRS)
Hospitalizations	Canadian Institute of Health Information Discharge Abstract Database (CIHI-DAD)
Presence of chronic diseases: asthma, COPD, CHF, hypertension, diabetes	Corresponding special use databases