

**Effect of Family Medicine Groups on Continuity of care
measured with year-to-year follow-up by known providers
using administrative databases**

By

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Plan of presentation

- Context
- Continuity
- Objectives
- Methods
- Definitions: Vulnerable, FMG, morbidity, KPC, propensity score
- Populations studied
- Analysis
- Results
- Conclusion



Context

- New models of primary care are being implemented in Canada in order to improve access and continuity of care, especially for patients with chronic diseases.
- In Quebec, Family Medicine Groups or FMG represent the main model with such objectives.
- Patients with chronic diseases often require care from multiple providers:
 - Stange, K. C., T. L. Ferrer. 2009. The Paradox of Primary Care. *Annals of Family Medicine* 7(4):293-299.
 - Haggerty, JL, R.J. Reid, G. K. Freeman, B. H. Starfield, C.E. Adair, R. McKendry. 2003. "Continuity of care: a multidisciplinary review." *BMJ* Nov 22;327(7425):1219-21.



Objectives

- **To assess the effect of family medicine groups on continuity offered by groups of physicians**
- **With Known Providers Continuity (KPC): a measure based on year-to-year follow-up by known providers using administrative databases**



Methods (population and design)

- **Place:** in the province of Quebec
- **Populations analyzed:** two cohorts of vulnerable patients one year before registration and four years of follow-up.
 - Cohort 1: patients registered with a physician practicing in a Family Medicine Group (FMG)
 - Cohort 2: patients registered with a physician not in a FMG.
- **Source of information:** linked administrative databases.



Definitions

- **Vulnerable patients:** since 2003, general practitioners have the possibility to enroll/register patients at least 70 years of age or with one of a selected set of chronic conditions (ex.: diabetes, COPD, cancer, severe mental disorders...).
- **Family medicine group (FMG):** a group of 5-10 physicians offering extended and coordinated care to registered patients with the help of nurses and administrative support.
- **Morbidity:** measured with the Johns Hopkins ACG Case-Mix System, Johns Hopkins Bloomberg School of Public Health, 2005 (from 0= non-users to 5=high)



Definitions (2)

- **Known providers continuity** offered by a group of physicians
 - Numerator: Total number of primary care visits in the studied year X with all the physicians seen in the previous year X-1
 - Denominator: Total number of ambulatory primary care visits to all physicians seen in the studied year X
- **Advantages:**
 - Meaningful even when patient has small number of visits in year X
 - Adds a longitudinal component to the concentration of care that represent other measures of continuity based on databases
 - Captures continuity offered by groups of physicians either globally or by types (GP, specialists)



Definitions (3)

- **Propensity score:** Covariates included demographics (age, socio-demographic status, geography, gender) chronic illness and burden, health services utilization, ambulatory care use, and whether the patient had a usual provider of care.

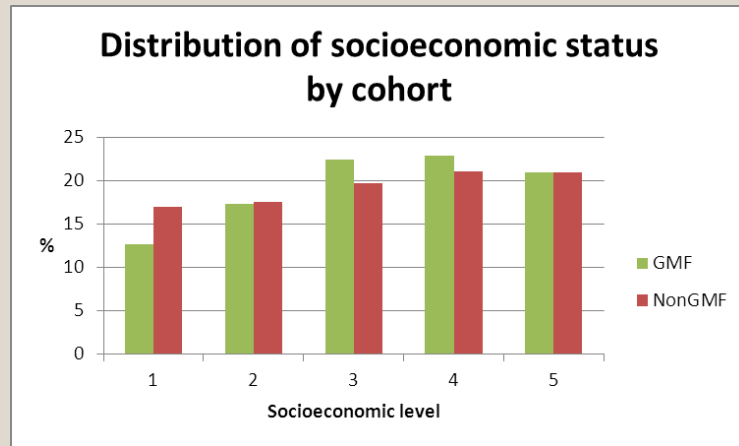
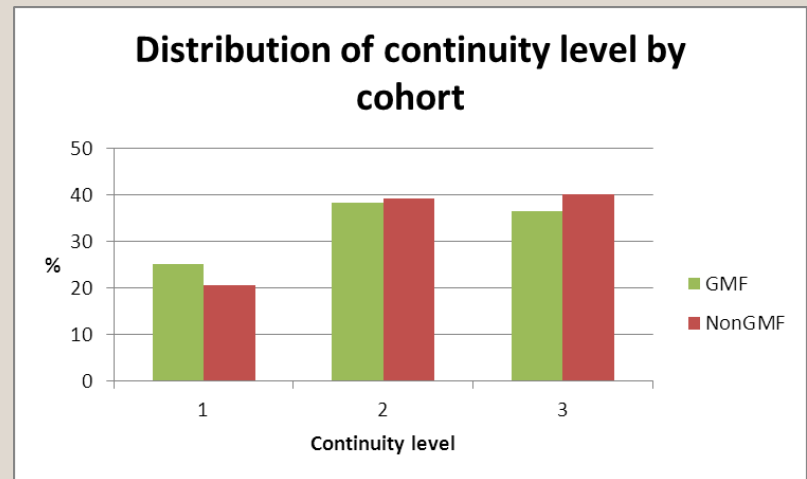
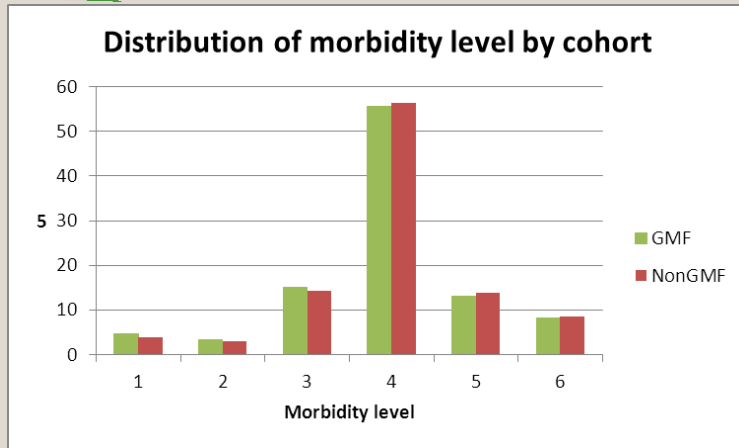


Groups compared

- After exclusion of dead and institutionalized (rates similar in both cohorts) :
 - GMF cohort: 122,584 individuals provided 568,403 patient-years under observation (unit of analysis).
 - NonGMF cohort : 673,850 individuals provided 3,115,210 patient-years under observation.
- In the pre-registration year, cohorts were similar for age, sex and morbidity.



Groups compared (2)



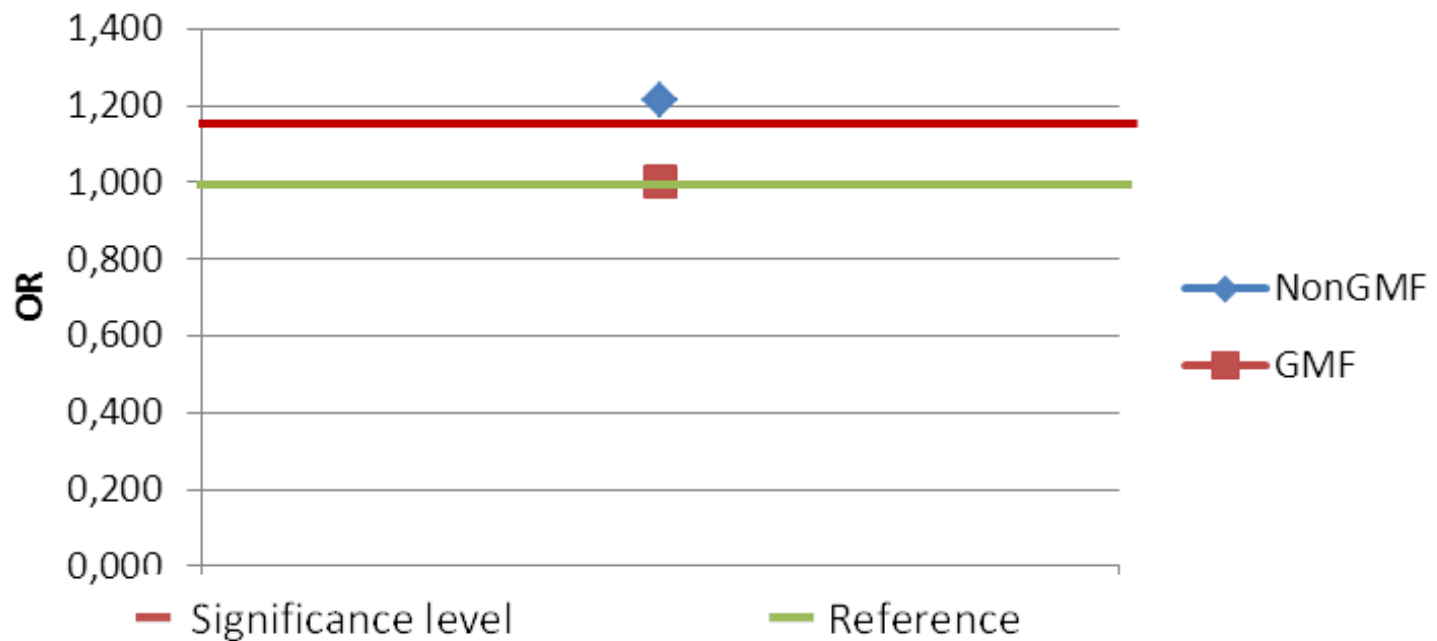
Analysis

- We used generalized estimating equations (GEE: logistic ordinal), with level of continuity (low=1 high=3) as the dependent variable and cohort membership as the explanatory variable, controlling for morbidity, sex, age group, socioeconomic level, ambulatory visits and weighting cases with propensity scores.
- In view of the large number of patients and the associated very narrow 99% confidence intervals, we set significance to ± 0.15 in OR



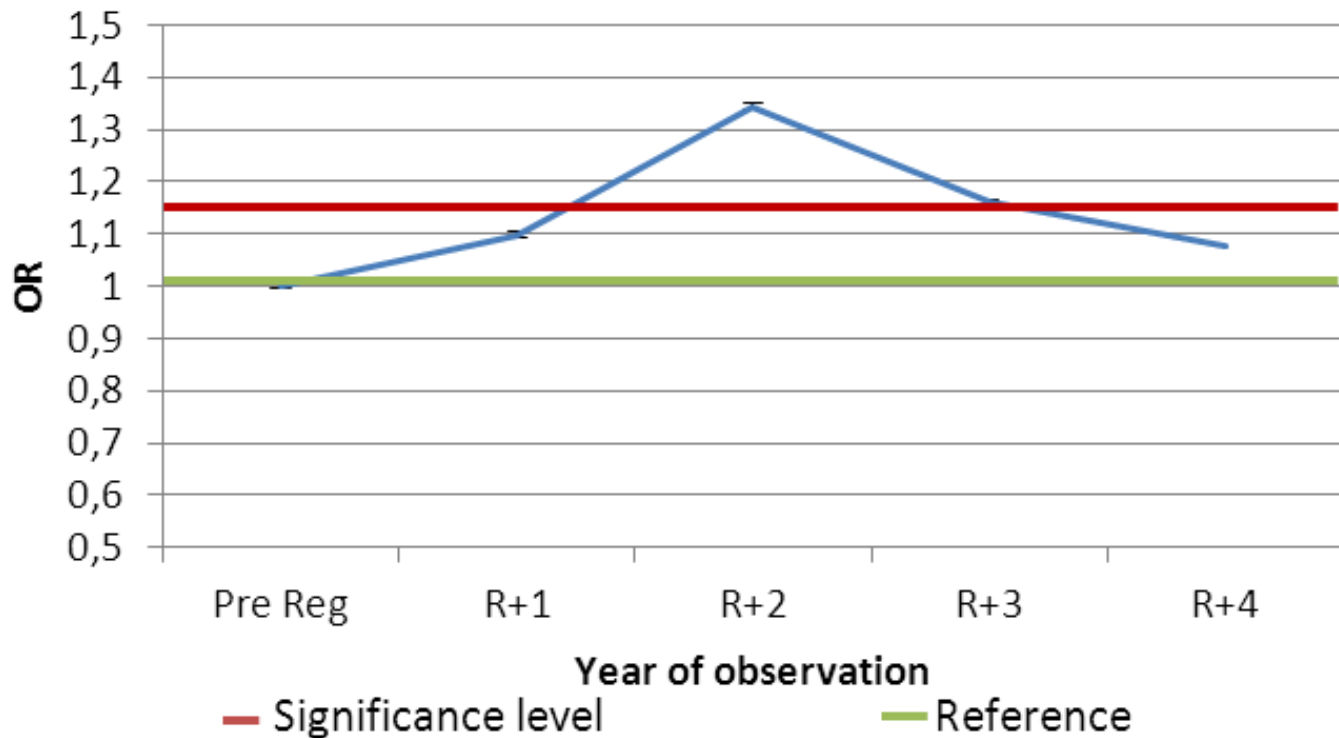
Results

Odds of higher continuity for nonGMF cohort compared to GMF



Effect of time

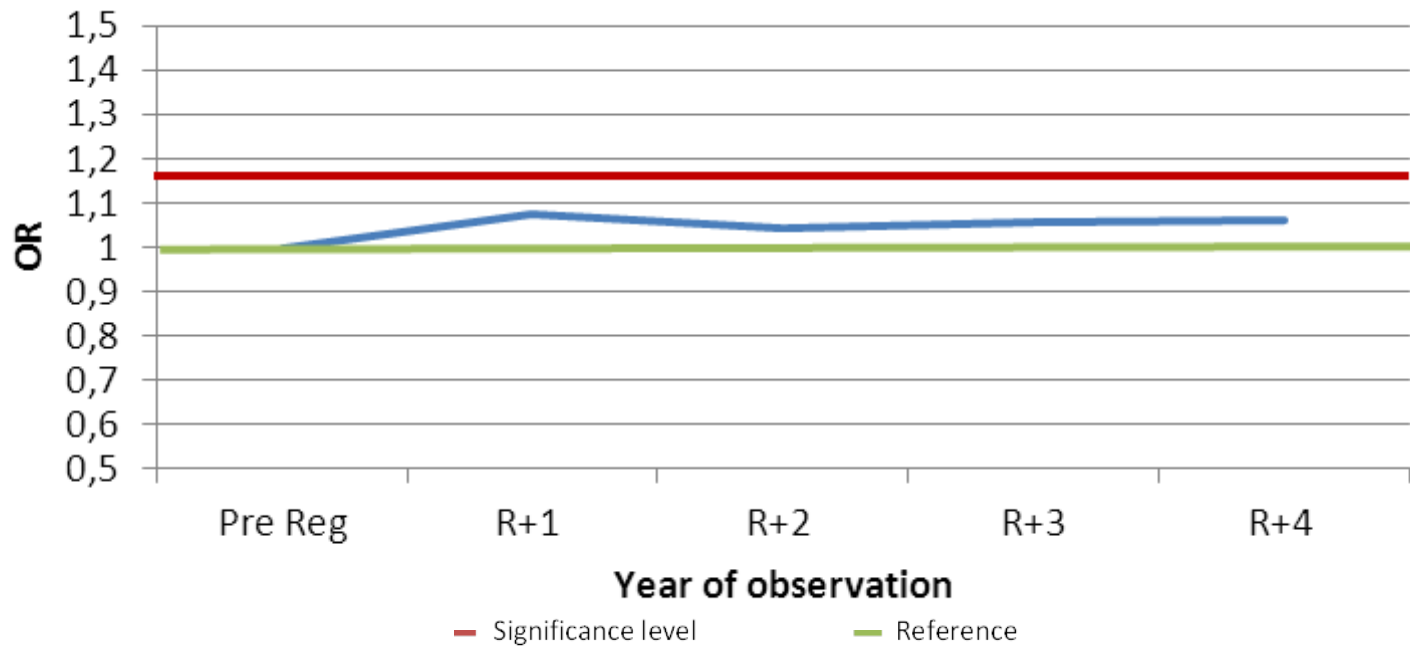
Odds of higher continuity over the years of follow-up



Effect of cohort membership

(interaction cohort*year)

Odds of a higher continuity in nonGMF cohort vs GMF cohort



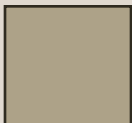
Conclusion

- Family medicine groups enlisted subjects with lower KPC group continuity before registration
- KPC group continuity increased after registration as vulnerable in both cohorts.
- Belonging to FMG did not influence KPC level over a four year follow-up.



Strengths and limitations

- Our administrative database include all vulnerable patients registered with a general practitioner in the province of Quebec between November 1 2002 and January 31 2005.
- Known providers continuity captures continuity offered by groups of physicians.
- However, administrative databases do not contain key information that would improve assessment of continuity (ex. quality of interpersonal relationship)



Acknowledgements

- The authors received important support from their institutions and from the Régie d'assurance-maladie du Quebec.
- The authors received funding from the Quebec ministry of health and welfare and from Canadian Institutes of Health Research.

