

Sourial Supplemental Appendix

Supplemental Appendix: Sensitivity analysis examination the association of interprofessional primary care and emergency department use using propensity-score calibration

In our study, population-level health administrative data were available for only a partial set of confounders, creating was is referred to as an “error-prone” propensity-score. A secondary data source, the RAI-HC, included baseline information on several important dementia-specific predictors of health service use identified in the directed acyclic graph, such as disease severity, caregiver status and use of antipsychotics. These data, however, were only available within the subset of those receiving home care. Using propensity-score calibration, this enriched set of confounders in the subset data was used to estimate the so-called “gold-standard” propensity-score in the population-level data. This estimation was conducted using regression calibration based on the following linear measurement error model in the subset data.

The full sample consisted of all 95,343 persons newly identified with dementia in Ontario between 2005 and 2015 for which only a partial set of confounders (age, income, rurality, recent immigrant status, comorbidity and resource utilization) were available.

The subsample consisted of 11,246 persons who had received long-term home care services and for whom a Resident Assessment Instrument for Home Care (RAI-HC) was completed within three months prior to dementia identification. Within this subsample, additional covariates on marital status, caregiver status, dementia disease severity, behavioral symptoms, functional status, self-reported health status, receipt of antipsychotic medication were available.

We defined:

A = Exposure (belong to an interprofessional primary care groupe)

PS_{EP} = “Error-prone” propensity score based on the partial set of covariates

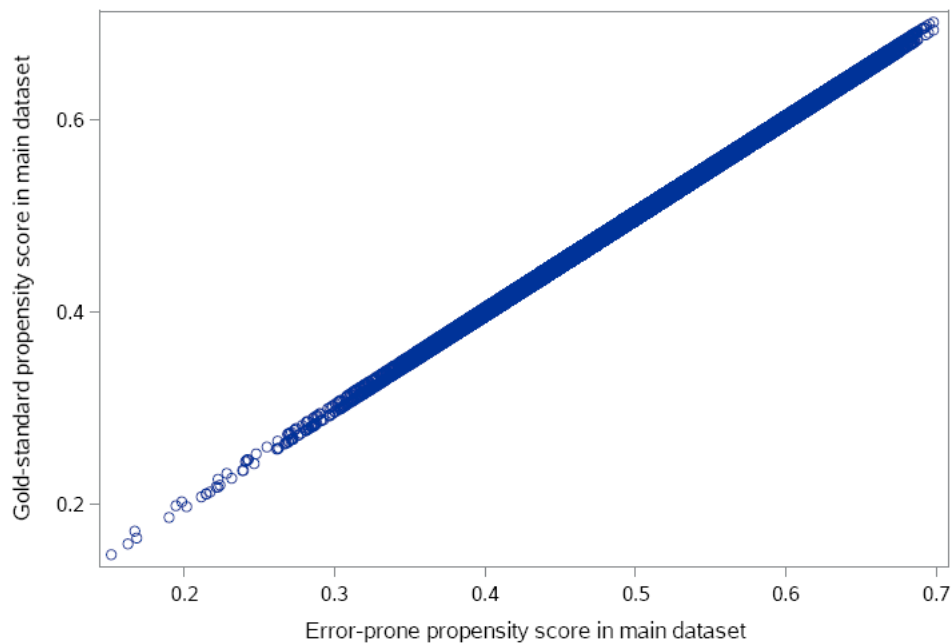
PS_{GS} = “Gold standard” propensity score based on the augmented set of covariates

The linear measurement error model of the relationship between **PS_{EP}** and **PS_{GS}** in the subset data was calculated as:

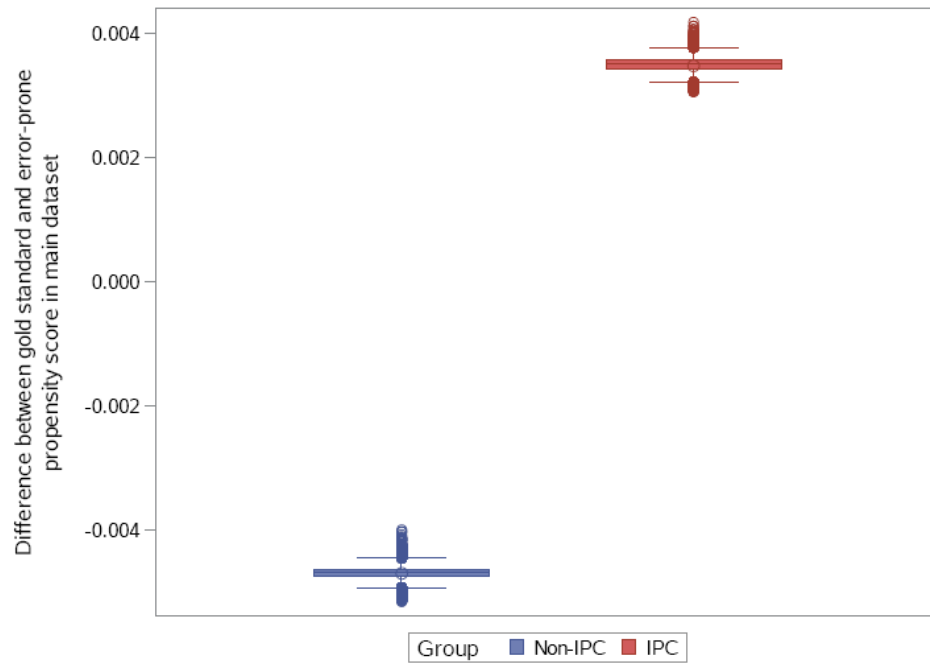
$$E[\text{PS}_{\text{GS}} \mid A, \text{PS}_{\text{EP}}] = -0.00368 + 0.00821 * A + 0.99789 * \text{PS}_{\text{EP}},$$

The **PS_{GS}** in the full sample was estimated by applying these parameter estimates to the full sample.

A comparison of the propensity-scores based on the **PS_{EP}** and estimated **PS_{GS}** in the full sample showed the scores to be highly correlated:



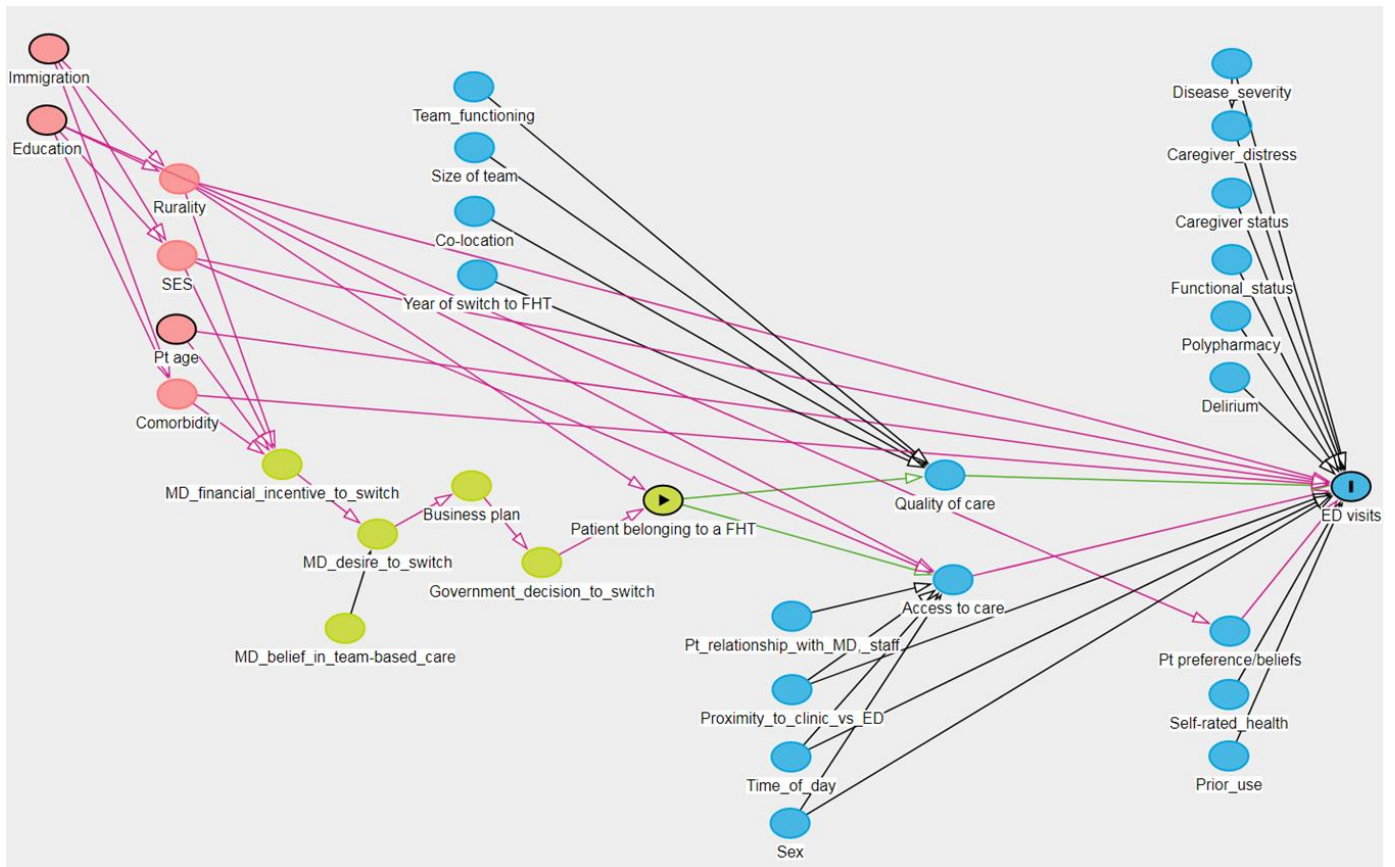
Comparing the distribution of the difference between the **PS_{EP}** and estimated, we found differences to be close to zero in each study group:



Finally, using the estimated PS_{GS} , the inverse-probability weighted relative risk of overall ED visits comparing IPC to non-IPC in the full sample was found to be equivalent to the original results based on the PS_{EP} (relative risk: 1.03; 95% CI: (1.01, 1.05)).

Sourial Supplemental Figure 1

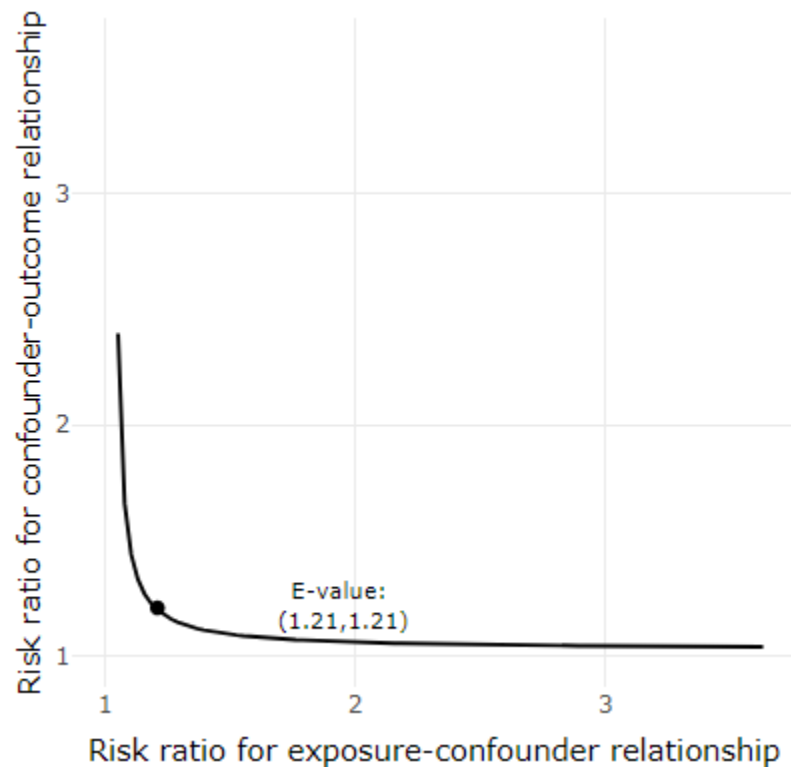
Supplemental Figure 1: Directed Acyclic Graph of the relationship between affiliation to an Ontario Family Health Team (FHT) and the occurrence of an ED visit in the year follow dementia identification for persons with dementia in Ontario.



SES: Socioeconomic status; Pt: Patient; MD: Medical doctor; FHT: Family Health Team; ED: Emergency department

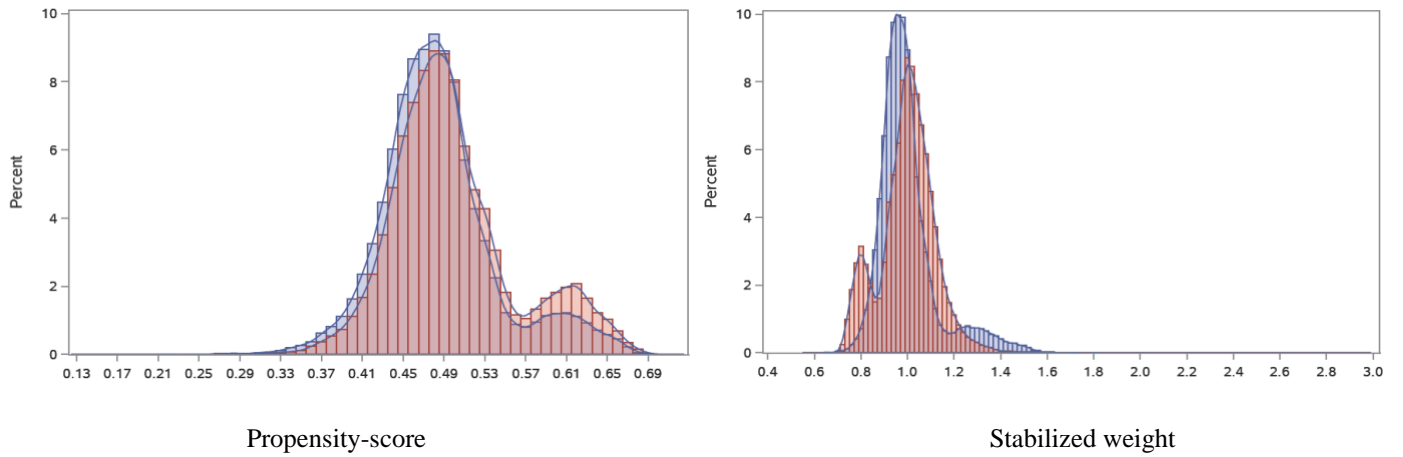
Sourial Supplemental Figure 4

Supplemental Figure 4: Sensitivity analysis examining the E-Value (minimum strength of association between an unmeasured confounder and the exposure and outcome required to explain away estimated effect of interprofessional primary care on emergency department use in persons newly identified with dementia)



Sourial Supplemental Figure 2

Supplemental Figure 2: Distribution of the propensity-score and stabilized weight in the IPC (N=46,830) and non-IPC group (N=48,493).

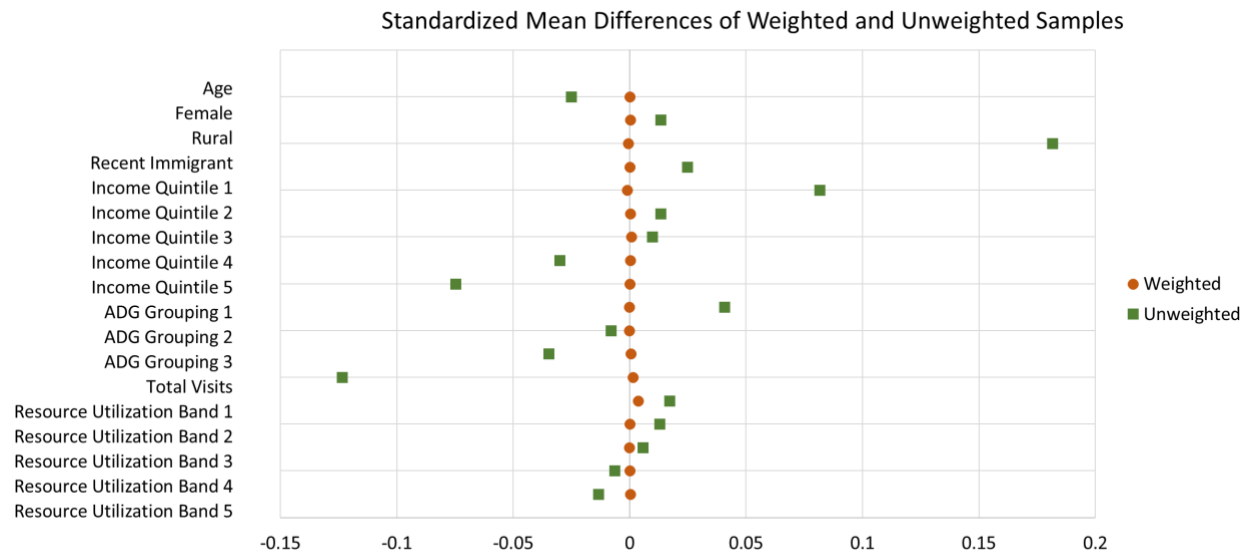


IPC: Interprofessional primary care

Footnote: Distributions in red represent the IPC group; distributions in blue represent the non-IPC group

Sourial Supplemental Figure 3

Supplemental Figure 3: Standardized mean differences in measured confounders in the unweighted and weighted sample.



Sourial Supplemental Table 1

Supplemental Table 1. Sensitivity analysis examining the association between interprofessional primary care and emergency department use in the weighted sample of persons newly identified with dementia in Ontario between April 1st 2005 and March 31st 2015 stratified by urban and rural residents

Outcomes	IPC group (N=46,830)	Non-IPC group (N=48,493)	Risk difference [‡] (95% CI)	Relative risk (95% CI)
<i>Among urban residents</i>	<i>N=39,008</i>	<i>N=43,400</i>		
Any ED visit, n (%)	12,581 (32.3%)	13,568 (31.3%)	1.3% (0.7%, 2.0%)	1.04 (1.02, 1.07)
<i>Among rural residents</i>	<i>N=7,822</i>	<i>N=5,093</i>		
Any ED visit, n (%)	2,778 (35.5%)	1,898 (37.3%)	-1.5% (-3.2%, 0.3%)	0.96 (0.92, 1.01)

IPC: Interdisciplinary primary care; ED: Emergency Department

[‡] Difference in percentage points (risk in IPC group – risk in non-IPC group)