

### Appendix 3 (as submitted by the authors)

#### Comparability of Exposure Groups

In these older, vulnerable patients with a complex array of underlying diseases, there usually is no simple indication for treatment. Prescribing decisions are typically made based on a range of factors, including medical history, current signs and symptoms, treatment history, etc. No dataset will contain all of these variables, but we have information on many important components, including history of diagnosed co-morbidities (mental and other), history of prescription medication use, and history of in- and outpatient healthcare utilization.

These variables have all been included in the propensity score and are thus accounted for in the analyses. For example, although there are differences in the overall distribution of mental co-morbidities between exposure groups (e.g., patients with depression are more likely to be prescribed an antidepressant), these differences are largely removed when accounting for the propensity score. This is illustrated in Table 1 below where we show the distribution of baseline characteristics after matching patients on the propensity score. In essence, in the adjusted Cox-proportional hazards analyses, we are comparing patients that are similar in terms of socio-demographics, clinical and utilization characteristics, but some were prescribed atypical antipsychotics, whereas others were prescribed conventional antipsychotics, antidepressants or benzodiazepines. In the manuscript, we present results adjusting for propensity score-quintile, rather than matching on propensity score, because matching requires dropping too many subjects from the study. The associations that we report remain unchanged, however, when we match rather than stratify on propensity score-quintile.

**Table 1** Distribution of selected baseline characteristics in propensity score-matched cohorts

	Conventional APM			Antidepressants			Benzodiazepines		
	Atyp APM	Conv APM	Diff	Atyp APM	Antidepr	Diff	Atyp APM	Benzo	Diff
Total	1,099	1,099		1,173	1,173		1,690	1,690	
Male	44.4%	43.0%	1.4%	41.6%	39.5%	2.1%	40.7%	41.4%	-0.8%
Age	83.4	83.4	0.0	84.0	83.9	0.1	84.1	83.9	0.2
Nursing Home Care Level									
Personal Care	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%
Intermediate Care 1	0.2%	0.2%	0.0%	0.4%	0.6%	-0.2%	0.3%	0.5%	-0.2%
Intermediate Care 2	21.4%	20.7%	0.7%	22.7%	22.0%	0.7%	19.0%	18.1%	0.9%
Intermediate Care 3	60.7%	61.9%	-1.2%	56.1%	56.7%	-0.6%	62.0%	63.6%	-1.6%
Extended Care	17.7%	17.2%	0.5%	20.8%	20.7%	0.1%	18.7%	17.7%	1.0%
<b>Comorbidities</b>									
<b>CARDIOVASCULAR</b>									
Cardiac arrhythmia	1.0%	0.9%	0.1%	1.2%	1.1%	0.1%	1.2%	1.0%	0.2%
Congestive heart failure	10.4%	12.1%	-1.7%	12.4%	11.3%	1.2%	11.5%	10.9%	0.6%
Hypertension	17.5%	18.6%	-1.1%	20.6%	20.2%	0.4%	18.4%	17.9%	0.5%

**Appendix to:** Huybrechts KF, Rothman KJ, Silliman RA, et al. Risk of death and hospital admission for major medical events after initiation of psychotropic medications in older adults admitted to nursing homes. CMAJ 2011.

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	Conventional APM			Antidepressants			Benzodiazepines		
	Atyp APM	Conv APM	Diff	Atyp APM	Antidepr	Diff	Atyp APM	Benzo	Diff
			1.1%						
Ischemic heart disease									
Myocardial infarction	4.0%	3.5%	0.5%	3.6%	2.8%	0.8%	3.7%	3.6%	0.1%
Coronary artery disease	5.1%	4.4%	0.7%	6.6%	5.4%	1.2%	5.3%	5.0%	0.3%
Other ischemic heart disease <sup>(2)</sup>	14.5%	14.5%	0.0%	17.1%	15.9%	1.2%	15.2%	15.1%	0.1%
Peripheral arterial disease	1.4%	1.3%	0.1%	2.1%	2.2%	-	1.8%	1.4%	0.4%
						0.1%			
Valvular disease	1.7%	1.9%	-	1.4%	1.4%	0.0%	1.5%	1.5%	0.0%
			0.2%						
Aneurysm	0.2%	0.4%	-	0.5%	0.4%	0.1%	0.5%	0.6%	-
			0.2%						0.1%
Other cardiovascular disease	0.6%	0.5%	0.1%	0.9%	0.9%	0.0%	0.7%	0.8%	-
									0.2%
<b>CEREBROVASCULAR</b>	13.9%	13.6%	0.4%	15.9%	15.1%	0.8%	14.0%	13.4%	0.5%
<b>MENTAL</b>									
Dementia	58.5%	57.5%	1.0%	44.2%	43.6%	0.6%	50.3%	49.8%	0.5%
Depression	10.6%	10.8%	-	14.2%	13.6%	0.6%	9.6%	9.3%	0.3%
			0.3%						
Delirium	15.3%	15.1%	0.2%	14.0%	12.3%	1.7%	13.1%	11.0%	2.1%
Mood disorder	2.1%	2.1%	0.0%	3.9%	3.3%	0.6%	3.0%	2.8%	0.2%
Psychotic disorder	26.1%	26.2%	-	19.8%	18.8%	0.9%	23.7%	22.8%	0.8%
			0.1%						
Anxiety	0.6%	0.6%	0.0%	1.1%	1.2%	-	0.9%	0.9%	0.0%
						0.1%			
Other psychiatric disorder	10.0%	10.3%	-	8.5%	8.0%	0.5%	7.4%	7.4%	0.0%
			0.3%						
<b>OTHER</b>									
Diabetes	9.4%	9.5%	-	9.7%	9.5%	0.3%	7.9%	8.3%	-
			0.1%						0.5%
Parkinson's disease	3.8%	3.5%	0.3%	4.9%	5.9%	-	4.5%	4.3%	0.2%
						0.9%			
Epilepsy	1.6%	1.4%	0.3%	1.1%	1.1%	0.0%	1.1%	0.8%	0.2%
Pneumonia	8.3%	8.8%	-	8.6%	9.2%	-	7.6%	7.8%	-
			0.5%			0.6%			0.2%
Chronic lung disease	7.6%	8.1%	-	9.3%	8.9%	0.4%	7.9%	7.9%	0.0%
			0.5%						
Osteoporosis	4.5%	4.8%	-	6.1%	5.7%	0.3%	4.8%	4.5%	0.3%
			0.4%						
Fracture	12.8%	12.5%	0.4%	13.2%	12.2%	1.0%	12.0%	10.9%	1.1%
<b>History of Alzheimer's Disease</b>	15.3%	15.4%	-	14.2%	14.1%	0.1%	18.3%	18.4%	-
<b>medication use</b>			0.1%						0.1%
<b>General indicators of comorbidity</b>									
Charlson comorbidity index	1.22	1.23	0.00	1.18	1.12	0.06	1.13	1.11	0.02
Hospitalization in past 180 days (y/n)	68.6%	70.2%	-	66.2%	64.5%	1.8%	62.6%	60.7%	1.9%
			1.5%						
Specialist visit 180 days before index prescription fill (y/n)									
Neurologist	8.3%	8.6%	-	8.9%	8.9%	0.0%	7.2%	7.9%	-
			0.3%						0.7%

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	Conventional APM			Antidepressants			Benzodiazepines		
	Atyp APM	Conv APM	Diff	Atyp APM	Antidepr	Diff	Atyp APM	Benzo	Diff
Psychiatrist	30.3%	30.1%	0.2%	29.2%	27.7%	1.5%	27.0%	26.9%	0.1%
Geriatrician	14.5%	13.8%	0.6%	10.1%	10.2%	-0.1%	10.8%	10.1%	0.7%
Number of physician visits prior 180d	19.8	19.8	0.0	21.5	21.4	0.1	19.7	19.1	0.6
Number of hospitalizations prior 180d	1.0	1.1	-0.1	1.0	1.0	0.0	0.9	1.0	-0.1
Number of prescription drugs prior 180d	8.4	8.6	-0.2	9.6	9.7	-0.1	8.9	8.8	0.1

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