Appendix

Table e1. Years for which each data source was available in the study provinces

Data Source	British Columbia	Manitoba
Discharge Abstract Database	1991/92-2015/16	1979/80-2016/17
Physician (medical services) visits	1991/92-2015/16	1979/80-2016/17
Prescription claims	1996-2015/16	1995-2016/17
Home care utilization	-	1998-2015

Slash between years designates fiscal years. For example, 1991/92 indicates fiscal year 1991 which is from April 1, 1991 to March 31, 1992

Table e2. Diagnosis, procedure and drug identification codes/numbers used to identify participants with multiple sclerosis, cardiac diagnoses and procedures

Diagnosis/ Procedure	Code
Prescription claims for multiple sclerosis	02169649; 02337819; 02237770, 02269201; 02281708, 02277492, 02237317, 02237319, 02237320, 02318253, 02318261, 02233014, 02245619; 02286386; 02365480, 02404508, 02416328; 02418320
Demyelinating disease claims [ICD-9/10-CA]	optic neuritis [377.3/H46], transverse myelitis [323.82/G37], acute disseminated encephalomyelitis [323/G36.9], demyelinating disease of CNS unspecified [341.9/G37.8], other acute disseminated demyelination [G36], MS [340/G35], or neuromyelitis optica [341.0/G36.0]
Cardiac catheterization [ICD-9/CCI]	37.21, 37.22, 37.23, 88.52-88.57 / 3.IP.10
Angioplasty with or without stent insertion [ICD-9/CCI]	36.01, 36.02, 36.05, 36.06 / 1.IJ.50.GQ-BD, 1.IJ.50.GU-BD, 1.IJ.50.GT-BD, 1.IJ.50.GQ-BF, 1.IJ.50.GU-BF, 1.IJ.50.GT-BF, 1.IJ.50.GQ-OD, 1.IJ.50.GU-OD, 1.IJ.50.GT-OD, 1.IJ.57.GQ, 1.IJ.50.GQ-NR, 1.IJ.50.GQ-OA, 1.IJ.50.GU-OA, 1.IJ.50.GT-OA, 1.IJ.50.GQ-OB, 1.IJ.50.GU-OB, 1.IJ.50.GT-OB, 1.IJ.50.GQ-OE, 1.IJ.50.GU-OE, 1.IJ.50.GT-OE
Coronary artery bypass grafting [ICD-9/CCI]	36.1x / 1.IJ.76

ICD = International Classification of Disease, CCI = Canadian Classification of Interventions

Table e3. Proportion of participants who filled a prescription for pharmacotherapy within 30 days after hospitalization for acute myocardial infarction

Pharmacotherapy	Multiple Sclerosis	Matches	Difference of Proportions (95% CI)	P-value
Beta-blocker use, n (%)				
Any use, all participants*	354/541 (65.4)	1768/2390 (74.0)	-8.6 (-13.0, -4.2)	**<0.0001**
Any use, excluding participants taking a beta-blocker or with lung disease pre-admission	247/394 (62.7)	1235/1678 (73.6)	-10.9 (-16.1, -5.7)	**<0.0001**
Any use among participants with ≥1 year follow-up	310/423 (73.3)	1541/1925 (80.1)	-6.8 (-11.4, -2.2)	**0.0025**
Any use among participants with ≥1 year follow-up, excluding participants taking a beta-blocker or with lung disease pre-admission	220/309 (71.2)	1116/1404 (79.5)	-8.3 (-13.8, -2.8)	**0.0019**
High dose statin use, n (%)				
Any use, all participants*	245/541 (45.3)	1188/2390 (49.7)	-8.9 (-13.4, -4.4)	**<0.0001**
Any use, excluding those taking a statin pre-admission	252/438 (57.5)	1154/1776 (65.0)	-7.5 (-12.6, -2.4)	**0.0038**
Any use among participants with ≥1 year follow-up	300/423 (70.9)	1476/1925 (76.7)	-5.8 (-10.5, -1.1)	**0.013**
Any use among participants with ≥1 year follow-up, excluding participants taking statin pre-admission	232/340 (68.2)	1044/1445 (72.2)	-4.0 (-9.3, 1.3)	0.14
Dual anti-platelet therapy, n (%)				
Any use, all participants	309/541 (57.1)	1461/2390 (61.1)	-4.0 (-8.6, 0.6)	0.085
Any use among participants with ≥1 year follow-up	269/423 (63.6)	1925/1486 (77.2)	-13.6 (-18.6, -8.6)	**0.0002**
ACEI/ARB use, n (%)				
Any use, all participants*	319/541 (59.0)	1958/2390 (81.9)	-22.9 (-27.3, -18.5)	**<0.0001**
Any use, excluding participants taking ACEI/ARB pre-admission	177/370 (47.8)	1244/1503 (82.8)	-35.0	**<0.0001**

Any use among participants with ≥1 year follow-up	276/423 (65.2)	1640/1925 (91.1)	(-40.4, -29.6) -25.9	**<0.0001**
Any use among participants with ≥1 year follow-up, excluding participants taking ACEI/ARB pre-admission	166/291 (57.0)	1027/1272 (80.7)	(-30.6, -21.2) -23.7 (-29.8, -17.6)	**<0.0001**

*Participants with an AMI index year in ≥1995 (Manitoba) or ≥1996 (British Columbia). Bold indicates statistical significance

Table e4. Pooled adjusted[a] odds ratios and 95% confidence intervals for association of multiple sclerosis with discontinuation of pharmacotherapy within 12 months and of good adherence

Pharmacotherapy[b]	Discontinuation	Good adherence
Beta-blocker	0.86 (0.66, 1.12) [d]	1.18 (0.89, 1.56) [d]
Statin	1.00 (0.75, 1.32) [d]	0.99 (0.75, 1.32) [d]
Anti-platelet[c]	1.13 (0.75, 1.71)[e]	1.02 (0.77, 1.36) [d]
ACEI/ARB	0.83 (0.58, 1.18)[f]	1.080.80, 1.46) [d]

Adjusted for age group, sex, index year, SES, number of physician visits, number of drug classes (ATC 4th level), diabetes, hypertension, hyperlipidemia, chronic lung disease; b- Sample sizes for pharmacotherapy analyses were: beta-blocker (British Columbia [BC]: 216 MS, 1045 matches; Manitoba [MB]: 112 MS, 566 matches), statins (BC: 216 MS, 1042 matches; MB: 113 MS, 567 matches), anti-platelets (BC: 195 MS, 876 matches; MB: 107 MS, 521 matches), ACEI/ARB (BC: 209 MS, 1030 matches; MB: 110 MS, 554 matches); c- In Manitoba adjusted only for sex, age due to small number of events; d-I^2 = 0; e-I^2 = 58.2%; f-I^2 = 31.5%

Table e5. Odds ratios (95% confidence intervals) for the association between multiple sclerosis and death within 30 or 365 days post-discharge after acute myocardial infarction (AMI)

Model	British Columbia
Death within 30 days	
Unadjusted	1.94 (0.92, 4.12)
Adjusted for demographics*, index year	1.95 (0.92, 4.16)
Adjusted for demographics*, index year, comorbidities,† acute complications‡	1.96 (0.88, 4.19)
Adjusted for demographics*, index year, comorbidities,† acute complications‡, AMI management§	1.47 (0.65, 3.33)
Death within 365 days	
Unadjusted	1.31 (0.88, 1.96)
Adjusted for demographics*, index year	1.33 (0.87, 2.02)
Adjusted for demographics*, index year, comorbidities,† acute complications‡	1.36 (0.88, 2.10)
Adjusted for demographics*, index year, comorbidities,† acute complications‡, AMI management§	1.16 (0.73, 1.85)

SES = socioeconomic status; *- demographics = age (20-54, ≥55), sex, SES; †- diabetes, congestive heart failure, cancer, cerebrovascular disease, chronic renal failure; ‡- shock, pulmonary edema, acute renal failure, cardiac dysrhythmia; §-revascularization within 30 days of AMI admission, use of each of beta-blockers, statins, ACE-inhibitors/Angiotensin-receptor blocker and dual anti-platelets within 30 days post-discharge