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Supplementary Appendix A. Data sources.

Data were obtained from several health administrative databases in Ontario, Canada.

- A) The Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD), and the National Ambulatory Care Reporting System (NACRS) contain detailed, validated diagnostic and procedural information about all hospital admissions and emergency department visits in the Province, respectively.(1)
- B) Demographic and vital status information were obtained from the OHIP Registered Persons Database (RPDB).
- C) Costs were considered by using previously established methods for case-costing in Ontario's administrative databases:(2)
 - acute hospitalizations, emergency department, and same day surgery costs are calculated using the resource intensity weight method,(3)
 - complex continuing care (CCC) and long-term care (LTC) costs are based on resource utilization groups and length of stay,(4)
 - physician service costs and prescription drug costs are based on direct payments to the physician/pharmacy,(2)
 - rehabilitation costs are based on the rehabilitation patient group case mix classification and length of stay,(5-7)
 - costs for home care are based on the number and costs per visit.(8)

These databases are held securely in linked, encoded form at the Institute for Clinical Evaluative Sciences (ICES) and have been used in prior research estimating healthcare costs (9-14) and studying traffic collisions.(15-17)

Supplementary Appendix B. International Classification of Diseases, 10th Revision (ICD-10) codes specifying cohort inclusion and exclusion.

Cohort inclusion:

Motorcycle:

V20-V29: Motorcycle rider/passenger injured in transport accident

Includes: moped, motor scooter, motorcycle with sidecar, motorized bicycle

Includes: driver, rider, unspecified

Excludes: three-wheeled motor vehicle (V30-V39)

Automobile:

V40-V49: Car occupant injured in transport accident

V50-V59: Occupant of pick-up truck or van injured in transport accident

V70-V79: Bus occupant injured in transport accident

Cohort exclusion (motor-vehicle associated injury in the prior 2 years):

V02: Pedestrian injured in collision with two- or three-wheeled motor vehicle

V03: Pedestrian injured in collision with car, pick-up truck or van

V04: Pedestrian injured in collision with heavy transport vehicle or bus

V09: Pedestrian injured in other and unspecified transport accidents

V12: Pedal cyclist injured in collision with two- or three-wheeled motor vehicle

V13: Pedal cyclist injured in collision with car, pick-up truck or van

V14: Pedal cyclist injured in collision with heavy transport vehicle or bus

V19: Pedal cyclist injured in other and unspecified transport accidents

V20-V29: Motorcycle rider injured in transport accident

V30-V39: Occupant of three-wheeled motor vehicle injured in transport accident

V40-V49: Car occupant injured in transport accident

V50-V59: Occupant of pick-up truck or van injured in transport accident

V60-V69: Occupant of heavy transport vehicle injured in transport accident

V70-V79: Bus occupant injured in transport accident

V80.3: Rider or occupant injured in collision with two- or three-wheeled motor vehicle

V80.4: Rider or occupant injured in collision with car, pick-up truck, van, heavy transport vehicle or bus

V80.5: Rider or occupant injured in collision with other specified motor vehicle

V86: Occupant of special all-terrain or other motor vehicle designed primarily for off-road use, injured in transport accident. Excludes: vehicle in stationary use or maintenance (W31.-)

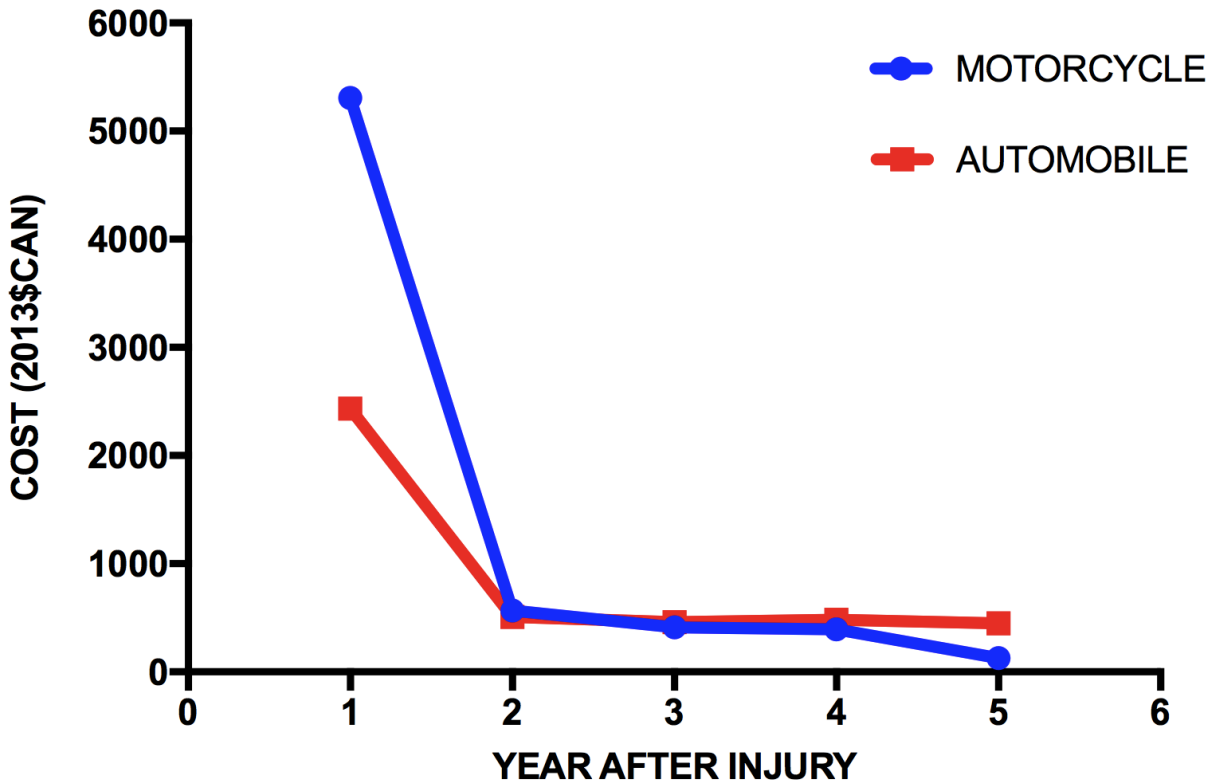
V87: Traffic accident of specified type but victim's mode of transport unknown. Excludes: collision involving: pedal cyclist (V10-V19), pedestrian (V01-V09), and V87.9

V88: Nontraffic accident of specified type but victim's mode of transport unknown. Excludes: collision involving: pedal cyclist (V10-V19), pedestrian (V01-V09) and V88.9

V89: Motor- or nonmotor-vehicle accident, type of vehicle unspecified

Supplementary Appendix C. Registered motorcycles and automobiles in Ontario, by year during the study period (MTO)(18)

	2007	2008	2009	2010	2011	2012
REGISTERED MOTORCYCLE	173314	191572	200810	211536	220026	228303
REGISTERED AUTOMOBILE	6339389	6446988	6488233	6547976	6605791	6683622

Supplementary Appendix D. Patient-level direct healthcare costs attributable to MC- and AC-related injury or death over time.

Supplementary Appendix E. Baseline characteristics and average costs of cases and matched controls (fiscal year 2007/12).

Variable	Class	Motorcycle-related injury or death			Automobile-related injury or death			p-value ^b
		Case Mean (SD)/%	Control Mean (SD)/%	SD ^a	Case Mean (SD)/%	Control Mean (SD)/%	SD ^a	
		26,257	26,257	-	276,760	276,760	-	-
Baseline Characteristics								
Age, mean (SD)		36.08 (16.34)	36.08 (16.34)	0.00	38.53 (19.09)	38.53 (19.09)	0.00	< 0.0001
Male, %		81.44	81.44	0.00	43.07	43.07	0.00	< 0.0001
CADG, %								
acute minor	1	62.69	64.80	0.04	73.40	71.97	0.03	< 0.0001
acute major	2	52.36	54.43	0.04	64.19	64.03	0.00	< 0.0001
likely to recur	3	47.83	49.43	0.03	59.79	58.22	0.03	< 0.0001
asthma	4	5.16	5.70	0.02	7.08	6.17	0.04	< 0.0001
chronic medical unstable	5	14.03	12.97	0.03	18.66	16.85	0.05	< 0.0001
chronic medical stable	6	25.67	27.92	0.05	36.53	33.78	0.06	< 0.0001
chronic specialty stable	7	4.09	3.38	0.04	4.06	3.79	0.01	0.7999
eye dental	8	3.48	3.82	0.02	6.28	5.40	0.04	< 0.0001
chronic specialty unstable	9	4.27	4.48	0.01	6.81	5.90	0.04	< 0.0001
psychosocial	10	28.15	29.92	0.04	33.66	34.56	0.02	< 0.0001
prevention, administration	11	23.91	25.82	0.04	37.75	36.81	0.02	< 0.0001
pregnancy	12	0.56	1.55	0.10	4.61	5.53	0.04	< 0.0001
LHIN, %								< 0.0001
	1	5.30	4.87	0.02	4.21	4.80	0.03	
	2	10.64	8.70	0.07	8.75	8.62	0.00	
	3	5.92	5.64	0.01	5.29	5.30	0.00	
	4	13.96	11.76	0.07	11.84	12.14	0.01	
	5	4.57	7.30	0.12	7.73	7.42	0.01	
	6	5.62	7.78	0.09	7.93	7.24	0.03	
	7	6.22	6.17	0.00	5.00	6.07	0.05	
	8	8.08	11.85	0.13	13.34	12.04	0.04	
	9	11.38	12.66	0.04	13.30	12.98	0.01	
	10	4.74	4.38	0.02	4.49	4.45	0.00	
	11	10.16	8.38	0.06	8.31	8.40	0.00	
	12	5.11	3.59	0.07	3.71	3.63	0.00	
	13	6.46	4.92	0.07	4.26	4.95	0.03	
	14	1.84	2.00	0.01	1.85	1.96	0.01	
Rurality Index, mean (SD)		15.85 (19.57)	11.32 (18.12)	0.24	11.39 (17.42)	11.24 (18.00)	0.01	< 0.0001
Income quintile, %								< 0.0001
	1	16.94	21.88	0.13	21.18	22.17	0.02	
	2	19.92	21.12	0.03	21.15	21.60	0.01	
	3	20.67	20.88	0.01	21.02	20.75	0.01	
	4	21.97	19.69	0.06	20.27	19.53	0.02	
	5	20.50	16.43	0.10	16.39	15.96	0.01	
Average cost								
Previous year, mean (SD)		1779.76(7003.45)	1664.34(8732.5)	-	2385.69(8223.62)	2314.57(9420.75)	-	< 0.0001
Year 1, mean (SD)		7012.96(23969.21)	1625.8(7878.04)	-	4819.68(18451.29)	2276.46(9582.72)	-	< 0.0001
Year 2, mean (SD)		2380.74(9522.63)	1712.3(8556.51)	-	2881.8(10993.91)	2287.61(9337.95)	-	< 0.0001

^a Standardized differences ≥ 0.1 represent meaningful differences in covariates between groups. ^b p-values compared MC-cases with AC-cases and were calculated using independent samples t-tests for continuous variables and chi-square tests for categorical variables.

^c LHIN; Local Health Integrated Network.

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