

DATA SUPPLEMENT

Socioeconomic gradients in all-cause, premature and avoidable mortality among immigrants and long-term residents using linked death records in Ontario, Canada

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Table 1 Causes of deaths amenable to medical care, public health intervention or both medical care and public health and related International Classification of Disease-9th revision codes.

Cause	ICD – 9 Code	Age group (years)
Deaths amenable to medical care and public health		
Ischemic heart disease	410 – 414, 429.2	35 – 74
Deaths amenable to medical care		
Intestinal infection	001 – 009	0 – 14
Tuberculosis	010 – 018, 137	0 – 74
Diphtheria	032	0 – 74
Whooping cough	033	0 – 14
Tetanus	037	0 – 74
Septicemia	038	0 – 74
Poliomyelitis	045	0 – 74
Measles	055	1 – 14
Syphilis	090 – 097	0 – 74
Other bacterial infections	019 – 031, 034, 320 – 322, 381 – 383, 390 – 392, 680 – 686, 711	0 – 74
Female breast cancer	174	25 – 74
Cervical cancer	180	15 – 74
Other uterine cancers	179, 182	15 – 74
Testicular cancer	186	0 – 74
Hodgkin’s disease	201	0 – 74
Leukemia	204 – 208	0 – 14
Diseases of the thyroid	240 – 246	0 – 74
Diabetes mellitus	250	0 – 74
Deficiency anemia	280, 281	0 – 74
Epilepsy	345	0 – 74
Active rheumatic fever	390 – 392	0 – 74
Chronic rheumatic heart disease	393 – 398	0 – 74
Hypertensive disease	401 – 405	35 – 74
Cerebrovascular disease	430 – 438	35 – 74
Influenza	487	0 – 74
Pneumonia	480 – 483, 485 – 486	0 – 74
Other acute respiratory infections	460 – 466	1 – 14
Asthma	493	0 – 49
Peptic ulcer	531 – 534	0 – 74
Appendicitis	540 – 543	0 – 74
Abdominal hernia	550 – 553	0 – 74
Ileus without hernia	560	0 – 74
Cholelithiasis, cholecystitis and cholangitis	574 – 575.1, 576.1	0 – 74
Nephritis and nephrosis	580 – 589	0 – 74
Infections of the urinary system	590, 595	0 – 74
Hyperplasia of the prostate	600	0 – 74
Complications of pregnancy	630 – 676	0 – 74
Osteomyelitis and periostitis	730	0 – 74
Congenital cardiovascular anomalies	745 – 747	0 – 74
Congenital digestive anomalies	750 – 751	0 – 74
Perinatal conditions, excluding still births	760 – 779	0 – 74
Misadventures to patients during surgical and medical care	E870 – 876, E878 – 879	0 – 74
Deaths amenable to public health		

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HIV	042	0 – 74
Lung cancer	162	0 – 74
Skin cancer	173	0 – 74
Chronic obstructive pulmonary disease	490 – 492, 496	0 – 74
Cirrhosis of the liver	571	0 – 74
Motor vehicle accidents	E810 – 825	0 – 74

HIV, Human Immunodeficiency Virus; ICD, International classification of diseases.

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Table 2 Age-adjusted mortality rates (per 1000 population) and rate ratios for all-cause, premature, and avoidable mortality across education quintile, by immigrant status and sex, Ontario, Canada, 2002-2012.

Cause of death; education quintile ^s	Immigrants				Long-term residents			
	Males		Females		Males		Females	
	AAMR (95% CI)	RR (95% CI)	AAMR (95% CI)	RR (95% CI)	AAMR (95% CI)	RR (95% CI)	AAMR (95% CI)	RR (95% CI)
All-cause								
EQ 1	20.83 (19.64-22.10)	1.54 (1.34-1.76)	13.19 (12.51-13.91)	1.35 (1.22-1.48)	53.89 (51.20-56.72)	1.64 (1.46-1.85)	33.70 (31.86-35.64)	1.53 (1.42-1.65)
EQ 2	18.51 (17.48-19.61)	1.35 (1.18-1.54)	12.16 (11.56-12.79)	1.24 (1.12-1.36)	47.86 (45.47-50.38)	1.46 (1.30-1.65)	30.67 (29.00-32.44)	1.39 (1.29-1.50)
EQ 3	17.63 (16.67-18.64)	1.29 (1.13-1.47)	11.11 (10.58-11.67)	1.11 (1.01-1.22)	43.10 (40.95-45.37)	1.32 (1.17-1.48)	27.65 (26.15-29.25)	1.26 (1.17-1.35)
EQ 4	15.83 (14.97-16.74)	1.14 (1.00-1.30)	10.99 (10.47-11.54)	1.12 (1.02-1.23)	37.82 (35.93-39.81)	1.16 (1.03-1.30)	24.49 (23.15-25.90)	1.11 (1.03-1.20)
EQ 5	13.83 (13.04-14.66)	1.00 (ref.)	10.07 (9.55-10.62)	1.00 (ref.)	32.39 (30.76-34.11)	1.00 (ref.)	21.91 (20.70-23.18)	1.00 (ref.)
Premature mortality								
EQ 1	9.74 (9.18-10.34)	1.64 (1.43-1.90)	5.60 (5.22-6.01)	1.44 (1.31-1.58)	24.80 (23.91-25.72)	1.80 (1.60-2.03)	14.66 (14.06-15.29)	1.70 (1.61-1.81)
EQ 2	8.44 (7.97-8.94)	1.42 (1.23-1.63)	5.07 (4.74-5.43)	1.30 (1.18-1.43)	21.52 (20.74-22.32)	1.57 (1.40-1.77)	13.07 (12.53-13.63)	1.52 (1.43-1.61)
EQ 3	7.87 (7.44-8.32)	1.33 (1.15-1.53)	4.58 (4.29-4.90)	1.16 (1.06-1.27)	18.99 (18.30-19.70)	1.39 (1.23-1.56)	11.50 (11.03-12.00)	1.34 (1.26-1.42)
EQ 4	6.98 (6.60-7.39)	1.15 (1.00-1.32)	4.59 (4.31-4.90)	1.18 (1.07-1.29)	16.21 (15.62-16.82)	1.18 (1.05-1.33)	9.84 (9.43-10.27)	1.14 (1.08-1.22)
EQ 5	5.92 (5.58-6.28)	1.00 (ref.)	3.89 (3.63-4.17)	1.00 (ref.)	13.50 (12.99-14.03)	1.00 (ref.)	8.59 (8.22-8.97)	1.00 (ref.)
Amenable to both medical care and public health								
EQ 1	4.12 (3.67-4.62)	1.98 (1.68-2.34)	0.83 (0.66-1.04)	2.01 (1.45-2.77)	11.12 (10.79-11.45)	2.21 (2.10-2.31)	3.47 (3.22-3.73)	3.06 (2.55-3.66)
EQ 2	3.73 (3.36-4.15)	1.79 (1.53-2.11)	0.88 (0.71-1.08)	2.08 (1.53-2.83)	9.30 (9.02-9.58)	1.84 (1.76-1.93)	2.73 (2.54-2.94)	2.38 (2.00-2.84)
EQ 3	3.42 (3.08-3.81)	1.64 (1.40-1.92)	0.72 (0.59-0.89)	1.69 (1.24-2.31)	8.04 (7.79-8.29)	1.59 (1.52-1.67)	2.33 (2.17-2.51)	1.97 (1.67-2.33)

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	2.94	1.41	0.61	1.42	6.80	1.35	1.75	1.48
EQ 4	(2.65-3.26)	(1.20-1.65)	(0.49-0.75)	(1.04-1.93)	(6.59-7.03)	(1.29-1.41)	(1.62-1.89)	(1.25-1.76)
EQ 5	2.09	1.00	0.43	1.00	5.05	1.00	1.24	1.00
	(1.84-2.37)	(ref.)	(0.33-0.55)	(ref.)	(4.87-5.24)	(ref.)	(1.13-1.36)	(ref.)
Amenable to medical care								
EQ 1	0.94	2.02	1.20	1.49	2.97	1.85	3.28	1.54
	(0.79-1.13)	(1.53-2.68)	(1.01-1.42)	(1.28-1.74)	(2.70-3.27)	(1.52-2.25)	(3.11-3.46)	(1.42-1.67)
EQ 2	0.89	1.93	0.96	1.19	2.54	1.60	2.88	1.35
	(0.75-1.06)	(1.46-2.54)	(0.81-1.14)	(1.02-1.39)	(2.31-2.79)	(1.31-1.94)	(2.73-3.03)	(1.25-1.47)
EQ 3	0.75	1.55	0.95	1.18	2.21	1.39	2.65	1.24
	(0.63-0.89)	(1.18-2.04)	(0.81-1.12)	(1.02-1.36)	(2.00-2.43)	(1.14-1.70)	(2.51-2.79)	(1.15-1.35)
EQ 4	0.61	1.26	0.92	1.14	1.86	1.16	2.29	1.07
	(0.52-0.73)	(0.95-1.65)	(0.79-1.08)	(0.99-1.32)	(1.68-2.05)	(0.95-1.41)	(2.17-2.42)	(0.99-1.17)
EQ 5	0.47	1.00	0.80	1.00	1.56	1.00	2.11	1.00
	(0.39-0.57)	(ref.)	(0.68-0.95)	(ref.)	(1.41-1.73)	(ref.)	(2.00-2.24)	(ref.)
Amenable to public health								
EQ 1	1.70	1.82	0.72	1.51	3.88	2.25	2.11	2.09
	(1.45-1.98)	(1.57-2.11)	(0.58-0.89)	(1.14-2.01)	(3.76-4.01)	(2.18-2.33)	(2.00-2.24)	(1.77-2.47)
EQ 2	1.29	1.39	0.58	1.22	3.23	1.87	1.82	1.89
	(1.11-1.51)	(1.19-1.61)	(0.47-0.71)	(0.92-1.62)	(3.12-3.34)	(1.81-1.94)	(1.72-1.93)	(1.60-2.23)
EQ 3	1.19	1.27	0.54	1.15	2.69	1.56	1.60	1.62
	(1.02-1.38)	(1.10-1.47)	(0.44-0.66)	(0.87-1.51)	(2.60-2.78)	(1.50-1.62)	(1.51-1.70)	(1.37-1.91)
EQ 4	1.13	1.22	0.56	1.18	2.23	1.30	1.29	1.28
	(0.98-1.31)	(1.06-1.41)	(0.46-0.68)	(0.91-1.54)	(2.15-2.32)	(1.25-1.35)	(1.22-1.37)	(1.08-1.51)
EQ 5	0.93	1.00	0.48	1.00	1.72	1.00	1.00	1.00
	(0.79-1.09)	(ref.)	(0.39-0.59)	(ref.)	(1.66-1.79)	(ref.)	(0.94-1.07)	(ref.)

[§] Education quintile one refers to areas with the smallest proportion of individuals with at least a high school degree; education quintile five refers to areas with the highest proportion of individuals with at least a high school degree. Area-level education information was utilized. Trends differed in a statistically significant manner across immigration status in females for all-cause (p-interaction: 0.0482) and premature (p-interaction: 0.0007) mortality, and in males for deaths amenable to public health measures (p-interaction: 0.0004). Individuals with unknown education information were excluded.

AAMR, age adjusted mortality rate; CI, confidence interval; EQ, education quintile; Ref, reference group; RR, rate ratio.