

Table E1. Standardized Mortality Ratios for Total and Specific Causes of Death

Parameter	Radiologists		Psychiatrists	
	No. of Deaths	Observed/Expected	No. of Deaths	Observed/Expected
All causes of death	4468	0.47	8339	0.52
All malignant neoplasms (140–208, 238.6)/(C00-C97)	1398	0.52	2457	0.54
Lip, oral cavity, pharynx (140–149)/(C00-C14)	30	0.54	41	0.45
Digestive organs (150–159)/(C15-C26)	393	0.61	696	0.64
Esophagus (150/C15)	37	0.43	54	0.39
Stomach (151/C16)	41	0.56	66	0.53
Colon excluding rectum (153)/(C18)	144	0.66	243	0.65
Rectum and rectosigmoid junction (154)/(C19-C21)	20	0.44	35	0.46
Liver and intrahepatic bile duct (155)/(C22)	38	0.56	65	0.59
Pancreas (157/C25)	102	0.76	204	0.9
Respiratory and intrathoracic organs (160–165)/(C30–39)	275	0.29	454	0.28
Lung and bronchus (162)/(C34)	265	0.29	443	0.29
Bone (170)/(C40-C41)	3	0.61	5	0.62
Skin (172–173)/(C43–44)	54	0.93	78	0.83
Melanoma (172)/(C43)	48	1.1	59	0.84
Other nonepithelial skin (173)/(C44)	6	0.42	19	0.81
Soft tissue (171)/(C45-C49)	23	0.91	36	0.87
Breast (174–175)/C50)	21	0.1	64	0.77
Genitourinary organs (179–189)/(C51-C68)	249	0.67	456	0.70
Prostate (185)/(C61)	148	0.69	304	0.80
Urinary bladder (188)/(C67)	42	0.67	53	0.49
Kidney and renal pelvis (189)/(C64-C65)	44	0.65	68	0.61
Brain and central nervous system (including benign) (191–192, 225)/(C70-C72, D32-D33, D35.2-D35.3, D42-D43)	59	0.78	130	1.06
Brain and central nervous system (191–192)(C70-C72)	52	0.77	119	1.09
Thyroid (193)/(C73)	9	1.87	7	0.87
All lymphoid and hematopoietic (200.0–200.8, 201.0–201.9, 202.0–202.2, 202.8–202.9, 203.0–203.2, 204.0–204.2, 204.8–204.9, 208.0–208.2, 208.8–208.9)/(C81-C88, C90.0, C90.2, C91.0–C91.9, C95-C96)	215	0.88	319	0.77
Total leukemia (204.0, 204.1, 204.2, 204.8, 204.9, 205.0, 205.1, 206.0, 207.0, 207.2, 208.0, 208.1, 208.2, 208.8, 208.9; C91.0–91.4, C92.0, C92.1, C92.4, C92.5, C93.0, C94.0, C94.2, C95)	84	0.86	117	0.71
Leukemia excluding chronic lymphocytic leukemia (204.0, 205.0–205.1, 206.0, 207.0, 207.2)/(C91.0, C92.0–C92.1, C92.4–C92.5, C93.0, C94.0, C94.2)	47	0.82	60	0.63
Total lymphoma (200.0–200.8, 201.0–201.9, 202.0–202.2, 202.8)/(C8182-C88);	101	0.93	156	0.87
All myeloid (205.0, 205.3, 205.8–205.9, 206.0–206.2, 206.8–206.9, 207.0–207.2, 238.7, 285.0)/(C92.0–C92.5, C92.7, C92.9, C93.0–C93.2, C93.7, C93.9, C94.0–C94.5, D45–D47.3)	59	0.84	75	0.64
Acute myeloid leukemia and myelodysplastic syndrome (MDS) (205.0, 206.0–206.2, 207.0, 207.2, 238.7, 285.0)/(C92.0, C92.4–C92.5, C93.0, C94.0, C94.2, D46)*	44	0.84	48	0.54

Acute myeloid and monocytic leukemia (205.0, 206.0–206.2, 207.0, 207.2)/(C92.0, C92.4-C92.5, C93.0, C94.0, C94.2)	33	0.79	38	0.54
MDS (238.7, 285.0)/(D46)	11	1.06	10	0.56
Myeloproliferative disorders (202.6, 205.1–205.2, 238.4–238.5)/(C92.1-C92.2, D45, D47.0-D47.1, D47.3)	13	0.9	21	0.87
Chronic myeloid leukemia (205.1)/(C92.1)	10	0.97	16	0.93
Other myeloid leukemia (205.3, 205.8–205.9)/(C92.3, C92.7, C92.9, C94.1)	2	0.93	6	1.64
Other myeloid malignancies (206.8–206.9, 207.1)/(C93.1-C93.2, C93.7, C93.9, C94.2-C94.5)	0	0	0	0
All lymphoid (200.0–200.8, 201.0–201.9, 202.0–202.2, 202.8–202.9, 203.0–203.2, 204.0–204.2, 204.8–204.9)/(C81-C88, C90.0, C90.2, C91.0-C91.9)	162	0.88	259	0.84
NHL (200.0–200.8, 202.0–202.2, 202.8–202.9)/(C82-C88)	95	0.94	151	0.9
Chronic lymphocytic leukemia (204.1, 204.2)/(C91.1-C91.3)	17	0.86	26	0.77
Acute lymphocytic leukemia (204.0)/(C91.0)	4	0.80	6	0.75
Other lymphoid leukemia (204.8–204.9)/(C91.4-C91.9)	0	0	3	1.09
Multiple myeloma (203.0–203.2)/(C90.0, C90.2)	40	0.84	65	0.8
Hodgkin lymphoma (201.0–201.9)/(C81)	6	0.71	8	0.59
Other leukemias of unspecified cell type (208.0–208.2, 208.8–208.9)/(C95)	18	0.8	21	0.55
Other and unspecified malignant neoplasms of lymphoid, hematopoietic and related tissue (202.5, 202.8–202.9)/(C96)	0	0	0	0
Infectious diseases (001–139)/(A00-B99)	91	0.32	294	0.68
Human immunodeficiency virus (042–044)/(B20-B24)	40	0.32	169	0.97
Septicemia (038)/(A40-A41)	15	0.17	49	0.32
Diseases of blood-forming tissue (280–289)/(D50-D89)	21	0.65	34	0.62
Aplastic anemia (284.8, 284.9)/(D61.3, D61.8, D61.9)	5	1.66	4	0.77
All endocrine disorders (240–279)/(E00-E90)	122	0.38	228	0.43
Disorders of the thyroid gland (240–246)/(E00-E90)	0	0	2	0.52
Diabetes mellitus (250)/(E10-E14)	93	0.37	158	0.38
All mental and behavioral disorders (290–319)/(F00-F99)	60	0.51	101	0.53
Neurologic and mental conditions (320–389)/(G00-G99)	185	0.91	312	0.9
Alzheimers (331.0)/(G30)	51	0.91	98	0.97
Other degenerative diseases of the nervous system (331.1–337.9)/(G31-G32)	53	1.50	68	1.08
All circulatory diseases (390–459)/(I00-I99)	1653	0.45	3093	0.49
Hypertension without heart disease (401)/(I10)	7	0.29	22	0.54
Ischemic heart disease (410–414)/(I20-I25)	981	0.45	1848	0.50
Other diseases of heart (420–429)/(I30-I52)	250	0.39	513	0.46
Cerebrovascular diseases (430–438)/(I60-I69)	242	0.52	411	0.50
Atherosclerosis (440)/(I70)	15	0.40	35	0.51
Aortic aneurysm and dissection (441)/(I71)	44	0.53	88	0.61
All diseases of the respiratory system (460–519)/(J00-J99)	240	0.30	499	0.36
Pneumonia and influenza (480–487)/(J10-J18)	72	0.36	172	0.49
Chronic obstructive pulmonary disease and allied conditions (490–496)/(J40-J47)	107	0.24	209	0.26
All gastrointestinal diseases (520–579)/(K00-K93)	139	0.35	222	0.35
Chronic liver disease and cirrhosis (571)/(K70-K77)	62	0.29	80	0.24
All genitourinary diseases (580–629)/(N00-N99)	65	0.42	120	0.45
Nephritis, nephrotic syndrome/glomerular disease (580–589)/(N00-N08)	20	0.45	46	0.57

Accidents and adverse effects (800-949)/(V01-X59, Y85-Y86)	316	0.49	660	0.67
Suicide and self-inflicted injury (E950-E959)/(U03, X60-X84, Y87.0)	170	0.88	394	1.38
Homicide and legal intervention (E960-E969)/(U01-U02, X85-Y09, Y87.1)	13	0.14	41	0.31

Note.—Except where noted, data are for men and women combined.

* Includes all malignant, benign, and uncertain behavior.

Table E2. RRs and 95% CIs for Deaths from All Causes, All Cancers, Site-specific Cancers, and Circulatory Diseases in All Exposed Radiologists Compared with Male Psychiatrists Who Were Confirmed Alive or Deceased: Sensitivity Analysis

Causes of Death (ICD 9 and 10 Codes)	<1940		1940–1959		1960–1979		1980+		P Value for Trend	Overall	
	Deaths*	RR [†]	Deaths*	RR [†]	Deaths*	RR [†]	Deaths*	RR [†]		Deaths*	RR [†]
All causes of death	712/1415	0.94 (0.86, 1.03)	2427/4389	0.95 (0.91, 1.00)	973/1689	0.82 (0.76, 0.89)	148/322	0.63 (0.51, 0.76)	<.001	4260/7815	0.91 (0.87, 0.94)
All malignant neoplasms (140–208, 238.6)/(C00-C97)	190/321	1.10 (0.92, 1.32)	745/1330	0.96 (0.88, 1.05)	337/528	0.90 (0.79, 1.04)	34/57	0.86 (0.56, 1.34)	.37	1306/2236	0.96 (0.90, 1.03)
Brain and central nervous system (including benign) (191–192, 225)/(C70-C72, D32-D33, D35.2-D35.3, D42-D43)	1/11	0.17 (0.02, 1.29)	26/59	0.75 (0.47, 1.20)	24/37	0.86 (0.52, 1.45)	6/12	0.67 (0.25, 1.79)	.33	57/119	0.73 (0.53, 1.01)
Brain and central nervous system (191–192)(C70-C72)	1/9	0.20 (0.02, 1.58)	23/54	0.73 (0.45, 1.19)	22/34	0.85 (0.50, 1.46)	6/11	0.71 (0.26, 1.94)	.49	52/108	0.73 (0.52, 1.02)
Total leukemia (204, 0, 204.1, 204.2, 204.8, 204.9, 205.0, 205.1, 206.0, 207.0, 207.2, 208.0, 208.1, 208.2, 208.8, 208.9; C91.0–91.4, C92.0, C92.1, C92.4, C92.5, C93.0, C94.0, C94.2, C95)	11/11	1.87 (0.82, 4.32)	44/59	1.28 (0.86, 1.90)	20/33	0.85 (0.49, 1.49)	2/2	1.19 (0.16, 9.03)	.45	77/105	1.19 (0.88, 1.60)
Leukemia excluding CLL (204.0, 205.0–205.1, 206.0, 207.0, 207.2)/(C91.0, C92.0-C92.1, C92.4-C92.5, C93.0, C94.0, C94.2)	5/3	3.21 (0.77, 13.45)	23/32	1.24 (0.72, 2.11)	14/16	1.20 (0.58, 2.45)	2/1	1.92 (0.17, 22.0)	>.50	44/52	1.34 (0.90, 2.01)
Acute myeloid leukemia and myelodysplastic syndrome (MDS) (205.0, 206.0, 2, 207.0, 207.2, 238.7, 285.0)/(C92.0, C92.4-C92.5, C93.0, C94.0, C94.2, D46) ^b	4/2	3.66 (0.67, 20.02)	22/28	1.35 (0.77, 2.37)	11/9	1.69 (0.70, 4.09)	3/0	NA	.24	40/39	1.64 (1.05, 2.56)
All circulatory diseases (390–459)/(I00-I99)	364/756	0.90 (0.80, 1.02)	944/1719	0.95 (0.88, 1.03)	290/452	0.96 (0.83, 1.12)	22/52	0.62 (0.37, 1.03)	.34	1620/2979	0.94 (0.88, 1.00)
Ischemic heart disease (410–414)/(I20-I25)	211/456	0.86 (0.73, 1.02)	563/1044	0.94 (0.84, 1.04)	176/271	0.97 (0.80, 1.17)	12/27	0.67 (0.34, 1.33)	>.50	962/1798	0.92 (0.85, 0.99)
Cerebrovascular diseases (430–438)/(I60-I69)	77/101	1.46 (1.08, 1.96)	133/219	1.06 (0.85, 1.31)	27/60	0.71 (0.45, 1.13)	2/6	0.43 (0.09, 2.16)	.04	239/386	1.09 (0.93, 1.28)

* Data are numbers of radiologists/numbers of psychiatrists.

† Stratified according to year of attained age (30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69, 70–74, 75–79, 80+), year of birth (1894–1903, 1904–1913, 1914–1923, 1924–1933, 1934–1943, 1944–1953, 1954–1963, 1964–1973, 1974–1983), and year of medical school graduation (< 1940, 1940–59, 1960–79, 1980+). Numbers in parentheses are 95% CIs. NA = not applicable.