

Supplementary Materials

Table S1. International Classification of Diseases Code.

| Causes of death | ICD-9-CM | ICD-10-CM |
|---|---------------------------------------|--|
| Infectious and parasitic diseases | 001-139 | A00-B99 |
| Neoplasms | 140-239 | C00-D49 |
| Malignant neoplasm of lip, oral cavity, and pharynx | 140-149 | C00-C14 |
| Malignancy of digestive organs and peritoneum | 150-159 | C15-C26 |
| Malignancy of respiratory and intrathoracic organs | 160-165 | C30-C39 |
| Malignancy of bone, connective tissue, skin, and breast | 170-176 | C40-C41, C43-C44, C45-C49, C50 |
| Malignancy of urinary organs | 185-189 | C64-C68 |
| Malignancy of lymphatic and hematopoietic tissue | 200-209 | C81-C96 |
| Other and unspecified sites | 170-184, 190-199, 210-239 | C51-C58, C60-63, C69-C72, C73-C75, C76-C80, C97, D00-D48 |
| Endocrine, nutritional, metabolic, and immunity disorders | 240-279 | E00-E89 |
| Diabetes mellitus | 249-250 | E10-E14 |
| Disorders of thyroid gland | 240-246, 251-259 | E00-E07, E15-E16, E20-E35 |
| Disorders of other endocrine glands | 260-279 | E40-E46, E50-E64, E65-E68, E70-E89 |
| Blood and blood-forming organs | 280-289 | D50-D89 |
| Mental disorders | 290-319 | F01-F99 |
| Nervous system and sense organs | 320-389 | G00-G99, H00-H95 |
| Circulatory system | 390-459 | I00-I99 |
| Hypertensive disease | 401-405 | I10-I16 |
| Ischemic heart disease | 410-414 | I20-I25 |
| Other forms of heart disease | 420-429 | I30-I52 |
| Cerebrovascular disease | 430-438 | I60-I69 |
| Diseases of arteries, arterioles, and capillaries | 440-449 | I70-I79 |
| Other diseases of circulatory system | 390-398, 415-417, 451-459 | I00-I02, I05-I09, I26-I28, I80-I89, I95-I99 |
| Respiratory system | 460-519 | J00-J99 |
| Pneumonia and influenza | 480-488 | J09-J18 |
| Chronic obstructive pulmonary disease and allied conditions | 490-496 | J40-J47 |
| Other diseases of respiratory system | 460-466, 470-478, 500-508, 510-519 | J00-J06, J20-J22, J30-J39, J60-J70, J80-J84, J85-J86, J90-J94, J95-J99 |
| Digestive system | 520-579 | K00-K95 |
| Diseases of esophagus, stomach, and duodenum | 530-539 | K20-K31 |
| Diseases of intestines | 555-558, 560, 562, 564, 565, 566, 569 | K50-K52, K55-K64 |
| Diseases of peritoneum and retroperitoneum | 567-568 | K65-K68 |

| | | |
|---|------------------------------------|------------------------------------|
| Diseases of liver | 570-573 | K70-K77 |
| Disorders of gallbladder, biliary tract, and pancreas | 574-577 | K80-K87 |
| Other diseases of digestive system | 520-529, 540-543, 550-553, 578-579 | K00-K14, K35-K38, K40-K46, K90-K95 |
| Genitourinary system | 580-629 | N00-N99 |
| Nephritis, nephrotic syndrome, and nephrosis | 580-589 | N00-N08, N10-16, N17-N19 |
| Other diseases of urinary system | 590-599 | N20-N23, N25-N29, N30-N39, N99 |
| Disorders of genital organ | 600-608, 610-612, 614-616, 617-629 | N40-N51, N60-N64, N70-N77, N80-N98 |
| Skin and subcutaneous tissue | 680-709 | L00-L99 |
| Musculoskeletal system and connective tissue | 710-739 | M00-M99 |
| Congenital anomalies | 740-759 | Q00-Q99 |
| Symptoms, signs, and ill-defined conditions | 780-799 | R00-R99 |
| Accident | E800-929 | V00-V99, W00-W99, X00-X58 |
| Suicide and self-inflicted injury | E950-959 | X71-X83 |
| Homicide and injury purposely inflicted by other persons | E960-969 | X92-X99, Y00-Y09 |
| Drugs, medicinal and biological substances causing adverse effects in therapeutic use | E930-E949 | Y62-Y69, Y70-Y82, Y83-Y84 |

ICD, CM = International Classification of Diseases, Clinical Modification.

Table S2. All-cause standardized mortality ratio (SMR) of peritoneal dialysis (PD) stratified by gender.

| Causes of death | Male | | | | Female | | | |
|---|----------|----------|-------|----------------|----------|----------|-------|----------------|
| | Observed | Expected | SMR | 95%CI | Observed | Expected | SMR | 95%CI |
| Total | 1865 | 295.82 | 6.30 | (6.02, 6.60) | 1949 | 226.35 | 8.61 | (8.23, 9.00) |
| Infectious and parasitic diseases | 121 | 9.18 | 13.18 | (10.94, 15.75) | 112 | 6.80 | 16.47 | (13.56, 19.82) |
| Neoplasms | 240 | 98.24 | 2.44 | (2.14, 2.77) | 199 | 69.57 | 2.86 | (2.48, 3.29) |
| Malignancy of digestive organs and peritoneum | 108 | 42.01 | 2.57 | (2.11, 3.10) | 60 | 24.85 | 2.41 | (1.84, 3.11) |
| Malignancy of respiratory and intrathoracic organs | 39 | 19.15 | 2.04 | (1.45, 2.78) | 12 | 11.62 | 1.03 | (0.53, 1.80) |
| Malignancy of bone, connective tissue, skin, and breast | 4 | 1.07 | 3.75 | (1.01, 9.60) | 26 | 8.18 | 3.18 | (2.07, 4.66) |
| Malignancy of urinary organs | 33 | 3.17 | 10.40 | (7.16, 14.6) | 54 | 2.50 | 21.59 | (16.22, 28.17) |
| Malignancy of lymphatic and hematopoietic tissue | 14 | 4.21 | 3.33 | (1.82, 5.58) | 11 | 3.35 | 3.28 | (1.63, 5.87) |
| Other and unspecified sites | 42 | 15.4 | 2.73 | (1.97, 3.69) | 36 | 9.12 | 3.95 | (2.77, 5.47) |
| Endocrine, nutritional, metabolic, and immunity disorders | 419 | 17.28 | 24.25 | (21.98, 26.68) | 453 | 19.89 | 22.77 | (20.73, 24.97) |
| Diabetes mellitus | 415 | 15.94 | 26.03 | (23.59, 28.66) | 443 | 18.66 | 23.74 | (21.58, 26.06) |
| Disorders of thyroid gland | 1 | 0.21 | 4.70 | (0.06, 26.15) | 2 | 0.31 | 6.37 | (0.72, 23.01) |
| Disorders of other endocrine glands | 3 | 1.12 | 2.67 | (0.54, 7.80) | 8 | 0.91 | 8.74 | (3.76, 17.23) |
| Blood and blood-forming organs | 9 | 0.72 | 12.50 | (5.70, 23.73) | 6 | 0.75 | 7.99 | (2.92, 17.39) |
| Mental disorders | 5 | 2.01 | 2.49 | (0.80, 5.80) | 4 | 1.84 | 2.17 | (0.59, 5.57) |
| Nervous system and sense organs | 20 | 3.82 | 5.24 | (3.20, 8.09) | 16 | 3.25 | 4.92 | (2.81, 7.99) |

| | | | | | | | | |
|---|-----|-------|-------|-----------------|-----|-------|-------|----------------|
| Circulatory system | 565 | 64.04 | 8.82 | (8.11, 9.58) | 428 | 52.14 | 8.21 | (7.45, 9.02) |
| Hypertensive disease | 97 | 7.32 | 13.25 | (10.75, 16.17) | 94 | 7.75 | 12.13 | (9.80, 14.84) |
| Ischemic heart disease | 233 | 18.09 | 12.88 | (11.28, 14.65) | 153 | 12.16 | 12.58 | (10.67, 14.74) |
| Cerebrovascular disease | 116 | 21.55 | 5.38 | (4.45, 6.46) | 78 | 17.32 | 4.50 | (3.56, 5.62) |
| Other diseases of circulatory system | 119 | 17.08 | 6.97 | (5.77, 8.34) | 103 | 14.92 | 6.91 | (5.64, 8.38) |
| Respiratory system | 156 | 33.91 | 4.60 | (3.91, 5.38) | 146 | 20.87 | 7.00 | (5.91, 8.23) |
| Pneumonia and influenza | 112 | 16.72 | 6.70 | (5.52, 8.06) | 105 | 12.08 | 8.70 | (7.11, 10.53) |
| Chronic obstructive pulmonary disease and allied conditions | 12 | 12.22 | 0.98 | (0.51, 1.72) | 8 | 5.38 | 1.49 | (0.64, 2.93) |
| Other diseases of respiratory system | 32 | 4.97 | 6.43 | (4.40, 9.08) | 33 | 3.41 | 9.67 | (6.65, 13.58) |
| Digestive system | 228 | 19.94 | 11.44 | (10.00, 13.02) | 239 | 12.67 | 18.87 | (16.55, 21.42) |
| Chronic liver disease and cirrhosis | 44 | 9.50 | 4.63 | (3.37, 6.22) | 22 | 5.68 | 3.88 | (2.43, 5.87) |
| Diseases of esophagus, stomach, and duodenum | 8 | 1.36 | 5.88 | (2.53, 11.60) | 7 | 0.96 | 7.28 | (2.92, 15.00) |
| Noninfective enteritis and colitis | 2 | 0.21 | 9.51 | (1.07, 34.35) | 3 | 0.23 | 13.22 | (2.66, 38.63) |
| Other diseases of digestive system | 174 | 8.87 | 19.62 | (16.82, 22.77) | 207 | 5.80 | 35.68 | (30.98, 40.88) |
| Genitourinary system | 653 | 10.61 | 61.53 | (56.90, 66.43) | 802 | 13.85 | 57.91 | (53.97, 62.06) |
| Nephritis, nephrotic syndrome, and nephrosis | 634 | 7.57 | 83.80 | (77.40, 90.58) | 775 | 8.82 | 87.92 | (81.83, 94.33) |
| Other diseases of urinary system | 15 | 2.82 | 5.33 | (2.98, 8.79) | 27 | 4.96 | 5.44 | (3.58, 7.91) |
| Disorders of genital organ | 4 | 0.23 | 17.24 | (4.64, 44.15) | 0 | 0.07 | - | - |
| Skin and subcutaneous tissue | 13 | 0.94 | 13.83 | (7.36, 23.66) | 17 | 1.02 | 16.6 | (9.66, 26.58) |
| Musculoskeletal system and connective tissue | 30 | 1.98 | 15.12 | (10.20, 21.58) | 46 | 2.46 | 18.73 | (13.71, 24.98) |
| Congenital anomalies | 2 | 0.12 | 17.01 | (1.91, 61.41) | 4 | 0.13 | 29.94 | (8.06, 76.66) |
| Symptoms, signs, and ill-defined conditions | 37 | 10.88 | 3.40 | (2.39, 4.69) | 29 | 9.35 | 3.10 | (2.08, 4.45) |
| Accident | 36 | 12.56 | 2.87 | (2.01, 3.97) | 28 | 5.94 | 4.71 | (3.13, 6.81) |
| Suicide and self-inflicted injury | 6 | 1.91 | 3.14 | (1.15, 6.83) | 2 | 1.51 | 1.32 | (0.15, 4.77) |
| Homicide and injury purposely inflicted by other persons | 1 | 0.25 | 4.05 | (0.05, 22.53) | 0 | 0.11 | - | - |
| Drugs, medicinal and biological substances causing adverse effects in therapeutic use | 8 | 0.15 | 54.84 | (23.61, 108.05) | 4 | 0.14 | 29.52 | (7.94, 75.57) |
| Other | 30 | 7.21 | 4.16 | (2.81, 5.94) | 25 | 3.93 | 6.37 | (4.12, 9.4) |

Table S3. All-cause standardized mortality ratio (SMR) of hemodialysis (HD) stratified by gender.

| Causes of death | Male | | | | Female | | | |
|---|----------|----------|-------|----------------|----------|----------|-------|----------------|
| | Observed | Expected | SMR | 95%CI | Observed | Expected | SMR | 95%CI |
| Total | 36834 | 7758.39 | 4.75 | (4.70, 4.80) | 34649 | 6177.47 | 5.61 | (5.55, 5.67) |
| Infectious and parasitic diseases | 1357 | 256.70 | 5.29 | (5.01, 5.58) | 1369 | 190.71 | 7.18 | (6.80, 7.57) |
| Neoplasms | 4570 | 2315.09 | 1.97 | (1.92, 2.03) | 3466 | 1528.38 | 2.27 | (2.19, 2.34) |
| Malignancy of digestive organs and peritoneum | 2237 | 828.93 | 2.70 | (2.59, 2.81) | 1335 | 517.13 | 2.58 | (2.44, 2.72) |
| Malignancy of respiratory and intrathoracic organs | 601 | 424.35 | 1.42 | (1.31, 1.53) | 309 | 224.82 | 1.37 | (1.23, 1.54) |
| Malignancy of bone, connective tissue, skin, and breast | 57 | 21.72 | 2.62 | (1.99, 3.40) | 221 | 110.55 | 2.00 | (1.74, 2.28) |
| Malignancy of urinary organs | 696 | 76.28 | 9.12 | (8.46, 9.83) | 826 | 59.56 | 13.87 | (12.94, 14.85) |
| Malignancy of lymphatic and hematopoietic tissue | 193 | 91.07 | 2.12 | (1.83, 2.44) | 148 | 65.59 | 2.26 | (1.91, 2.65) |
| Other and unspecified sites | 786 | 284.27 | 2.76 | (2.58, 2.97) | 627 | 150.24 | 4.17 | (3.85, 4.51) |
| Endocrine, nutritional, metabolic, and immunity disorders | 6560 | 461.00 | 14.23 | (13.89, 14.58) | 7152 | 580.05 | 12.33 | (12.05, 12.62) |
| Diabetes mellitus | 6449 | 429.09 | 15.03 | (14.66, 15.40) | 7063 | 547.27 | 12.91 | (12.61, 13.21) |
| Disorders of thyroid gland | 26 | 5.22 | 4.98 | (3.25, 7.30) | 21 | 7.59 | 2.77 | (1.71, 4.23) |
| Disorders of other endocrine glands | 85 | 26.69 | 3.18 | (2.54, 3.94) | 68 | 25.20 | 2.70 | (2.10, 3.42) |
| Blood and blood-forming organs | 56 | 19.84 | 2.82 | (2.13, 3.67) | 73 | 20.75 | 3.52 | (2.76, 4.42) |
| Mental disorders | 28 | 55.76 | 0.50 | (0.33, 0.73) | 23 | 65.25 | 0.35 | (0.22, 0.53) |
| Nervous system and sense organs | 248 | 102.11 | 2.43 | (2.14, 2.75) | 205 | 86.15 | 2.38 | (2.06, 2.73) |
| Circulatory system | 7597 | 1772.95 | 4.28 | (4.19, 4.38) | 6427 | 1595.42 | 4.03 | (3.93, 4.13) |
| Hypertensive disease | 1170 | 205.49 | 5.69 | (5.37, 6.03) | 1082 | 241.73 | 4.48 | (4.21, 4.75) |
| Ischemic heart disease | 2831 | 491.46 | 5.76 | (5.55, 5.98) | 2113 | 366.01 | 5.77 | (5.53, 6.02) |
| Cerebrovascular disease | 1883 | 624.71 | 3.01 | (2.88, 3.15) | 1651 | 537.06 | 3.07 | (2.93, 3.23) |
| Other diseases of circulatory system | 1713 | 451.28 | 3.80 | (3.62, 3.98) | 1581 | 450.62 | 3.51 | (3.34, 3.69) |
| Respiratory system | 2684 | 1151.01 | 2.33 | (2.24, 2.42) | 1907 | 684.80 | 2.78 | (2.66, 2.91) |
| Pneumonia and influenza | 1836 | 560.45 | 3.28 | (3.13, 3.43) | 1396 | 398.40 | 3.50 | (3.32, 3.69) |
| Chronic obstructive pulmonary disease and allied conditions | 369 | 437.80 | 0.84 | (0.76, 0.93) | 165 | 183.62 | 0.90 | (0.77, 1.05) |
| Other diseases of respiratory system | 479 | 152.76 | 3.14 | (2.86, 3.43) | 346 | 102.77 | 3.37 | (3.02, 3.74) |
| Digestive system | 2365 | 442.55 | 5.34 | (5.13, 5.56) | 2182 | 347.24 | 6.28 | (6.02, 6.55) |
| Chronic liver disease and cirrhosis | 911 | 183.47 | 4.97 | (4.65, 5.30) | 581 | 140.52 | 4.13 | (3.81, 4.49) |
| Diseases of esophagus, stomach, and duodenum | 139 | 41.51 | 3.35 | (2.82, 3.95) | 104 | 30.77 | 3.38 | (2.76, 4.10) |
| Noninfective enteritis and colitis | 44 | 7.81 | 5.64 | (4.09, 7.57) | 79 | 8.56 | 9.23 | (7.30, 11.50) |
| Other diseases of digestive system | 1271 | 209.76 | 6.06 | (5.73, 6.40) | 1418 | 167.39 | 8.47 | (8.04, 8.92) |
| Genitourinary system | 9383 | 328.42 | 28.57 | (27.99, 29.15) | 10359 | 425.80 | 24.33 | (23.86, 24.80) |
| Nephritis, nephrotic syndrome, and nephrosis | 9163 | 227.09 | 40.35 | (39.53, 41.19) | 9952 | 261.68 | 38.03 | (37.29, 38.79) |
| Other diseases of urinary system | 199 | 93.06 | 2.14 | (1.85, 2.46) | 390 | 162.40 | 2.40 | (2.17, 2.65) |
| Disorders of genital organ | 21 | 8.28 | 2.54 | (1.57, 3.88) | 17 | 1.72 | 9.89 | (5.76, 15.84) |

| | | | | | | | | |
|---|-----|--------|-------|----------------|-----|--------|-------|----------------|
| Skin and subcutaneous tissue | 203 | 29.16 | 6.96 | (6.04, 7.99) | 212 | 33.72 | 6.29 | (5.47, 7.19) |
| Musculoskeletal system and connective tissue | 285 | 51.10 | 5.58 | (4.95, 6.26) | 337 | 63.90 | 5.27 | (4.73, 5.87) |
| Congenital anomalies | 33 | 1.78 | 18.53 | (12.75, 26.02) | 34 | 1.93 | 17.65 | (12.22, 24.67) |
| Symptoms, signs, and ill-defined conditions | 500 | 347.08 | 1.44 | (1.32, 1.57) | 459 | 331.22 | 1.39 | (1.26, 1.52) |
| Accident | 706 | 253.64 | 2.78 | (2.58, 3.00) | 413 | 122.38 | 3.37 | (3.06, 3.72) |
| Suicide and self-inflicted injury | 138 | 46.07 | 3.00 | (2.52, 3.54) | 71 | 27.49 | 2.58 | (2.02, 3.26) |
| Homicide and injury purposely inflicted by other persons | 2 | 3.67 | 0.54 | (0.06, 1.97) | 4 | 1.48 | 2.71 | (0.73, 6.94) |
| Drugs, medicinal and biological substances causing adverse effects in therapeutic use | 83 | 2.85 | 29.15 | (23.22, 36.13) | 116 | 2.84 | 40.85 | (33.75, 48.99) |
| Other | 382 | 115.54 | 3.31 | (2.98, 3.65) | 325 | 64.76 | 5.02 | (4.49, 5.60) |

Table S4. All-cause standardized mortality ratio (SMR) of peritoneal dialysis (PD) stratified by age.

| Causes of death | 18-49 y/o | | | | 50-64 y/o | | | | ≥ 65 y/o | | | |
|---|-----------|-------|--------|-----------------|-----------|--------|-------|----------------|----------|--------|-------|----------------|
| | Obs. | Exp. | SMR | 95%CI | Obs. | Exp. | SMR | 95%CI | Obs. | Exp. | SMR | 95%CI |
| Total | 407 | 31.49 | 12.93 | (11.70, 14.25) | 1284 | 131.62 | 9.76 | (9.23, 10.30) | 2123 | 359.06 | 5.91 | (5.66, 6.17) |
| Infectious and parasitic diseases | 19 | 0.74 | 25.68 | (15.45, 40.11) | 76 | 3.06 | 24.84 | (19.57, 31.09) | 138 | 12.18 | 11.33 | (9.52, 13.39) |
| Neoplasms | 54 | 10.27 | 5.26 | (3.95, 6.86) | 165 | 57.29 | 2.88 | (2.46, 3.35) | 220 | 100.25 | 2.19 | (1.91, 2.50) |
| Malignancy of digestive organs and peritoneum | 15 | 3.44 | 4.36 | (2.44, 7.20) | 71 | 22.75 | 3.12 | (2.44, 3.94) | 82 | 40.68 | 2.02 | (1.60, 2.50) |
| Malignancy of respiratory and intrathoracic organs | 4 | 1.12 | 3.57 | (0.96, 9.14) | 15 | 9.23 | 1.63 | (0.91, 2.68) | 32 | 20.41 | 1.57 | (1.07, 2.21) |
| Malignancy of bone, connective tissue, skin, and breast | 7 | 1.10 | 6.36 | (2.55, 13.11) | 12 | 4.58 | 2.62 | (1.35, 4.58) | 11 | 3.57 | 3.08 | (1.54, 5.51) |
| Malignancy of urinary organs | 12 | 0.12 | 99.51 | (51.36, 173.83) | 30 | 1.26 | 23.73 | (16.01, 33.87) | 45 | 4.29 | 10.49 | (7.65, 14.04) |
| Malignancy of lymphatic and hematopoietic tissue | 4 | 0.46 | 8.77 | (2.36, 22.46) | 11 | 2.23 | 4.94 | (2.46, 8.83) | 10 | 4.88 | 2.05 | (0.98, 3.77) |
| Other and unspecified sites | 12 | 2.45 | 4.91 | (2.53, 8.57) | 26 | 10.34 | 2.52 | (1.64, 3.69) | 40 | 11.73 | 3.41 | (2.44, 4.64) |
| Endocrine, nutritional, metabolic, and immunity disorders | 85 | 1.04 | 82.00 | (65.50, 101.40) | 353 | 7.91 | 44.61 | (40.08, 49.52) | 434 | 28.22 | 15.38 | (13.97, 16.90) |
| Diabetes mellitus | 84 | 0.81 | 103.71 | (82.72, 128.40) | 348 | 7.27 | 47.9 | (42.99, 53.20) | 426 | 26.53 | 16.06 | (14.57, 17.66) |
| Disorders of thyroid gland | 1 | 0.06 | 17.38 | (0.23, 96.72) | 0 | 0.14 | - | - | 2 | 0.33 | 6.03 | (0.68, 21.75) |
| Disorders of other endocrine glands | 0 | 0.17 | - | - | 5 | 0.51 | 9.81 | (3.16, 22.90) | 6 | 1.36 | 4.41 | (1.61, 9.60) |
| Blood and blood-forming organs | 4 | 0.09 | 43.36 | (11.67, 111.01) | 6 | 0.31 | 19.49 | (7.12, 42.42) | 5 | 1.07 | 4.67 | (1.50, 10.89) |
| Mental disorders | 0 | 0.36 | - | - | 1 | 0.71 | 1.42 | (0.02, 7.88) | 8 | 2.79 | 2.87 | (1.24, 5.66) |
| Nervous system and sense organs | 8 | 0.49 | 16.49 | (7.10, 32.49) | 12 | 1.54 | 7.77 | (4.01, 13.58) | 16 | 5.04 | 3.18 | (1.81, 5.16) |
| Circulatory system | 140 | 4.49 | 31.18 | (26.23, 36.79) | 387 | 23.57 | 16.42 | (14.83, 18.14) | 466 | 88.12 | 5.29 | (4.82, 5.79) |
| Hypertensive disease | 35 | 0.36 | 97.17 | (67.67, 135.15) | 61 | 2.53 | 24.13 | (18.45, 30.99) | 95 | 12.18 | 7.80 | (6.31, 9.53) |
| Ischemic heart disease | 34 | 0.91 | 37.39 | (25.89, 52.26) | 162 | 6.40 | 25.31 | (21.56, 29.52) | 190 | 22.94 | 8.28 | (7.15, 9.55) |
| Cerebrovascular disease | 37 | 1.44 | 25.66 | (18.07, 35.37) | 84 | 7.72 | 10.88 | (8.68, 13.47) | 73 | 29.71 | 2.46 | (1.93, 3.09) |
| Other diseases of circulatory system | 34 | 1.78 | 19.12 | (13.24, 26.71) | 80 | 6.92 | 11.56 | (9.17, 14.39) | 108 | 23.30 | 4.64 | (3.80, 5.60) |
| Respiratory system | 28 | 0.92 | 30.37 | (20.18, 43.90) | 79 | 5.99 | 13.18 | (10.44, 16.43) | 195 | 47.87 | 4.07 | (3.52, 4.69) |
| Pneumonia and influenza | 20 | 0.52 | 38.49 | (23.5, 59.45) | 53 | 3.22 | 16.48 | (12.34, 21.55) | 144 | 25.06 | 5.75 | (4.85, 6.77) |

| | | | | | | | | | | | | |
|---|-----|------|--------|------------------|-----|-------|--------|------------------|-----|-------|-------|-----------------|
| Chronic obstructive pulmonary disease and allied conditions | 1 | 0.17 | 5.91 | (0.08, 32.86) | 4 | 1.51 | 2.65 | (0.71, 6.79) | 15 | 15.92 | 0.94 | (0.53, 1.55) |
| Other diseases of respiratory system | 7 | 0.23 | 30.05 | (12.04, 61.91) | 22 | 1.27 | 17.35 | (10.87, 26.27) | 36 | 6.89 | 5.23 | (3.66, 7.24) |
| Digestive system | 59 | 3.62 | 16.30 | (12.41, 21.03) | 167 | 10.08 | 16.57 | (14.15, 19.28) | 241 | 18.90 | 12.75 | (11.19, 14.47) |
| Chronic liver disease and cirrhosis | 12 | 1.98 | 6.08 | (3.14, 10.61) | 23 | 5.82 | 3.95 | (2.50, 5.93) | 31 | 7.38 | 4.20 | (2.85, 5.97) |
| Diseases of esophagus, stomach, and duodenum | 2 | 0.09 | 23.38 | (2.63, 84.42) | 4 | 0.44 | 9.13 | (2.46, 23.37) | 9 | 1.80 | 5.01 | (2.29, 9.51) |
| Noninfective enteritis and colitis | 2 | 0.02 | 126.61 | (14.22, 457.12) | 2 | 0.08 | 25.61 | (2.88, 92.47) | 1 | 0.34 | 2.91 | (0.04, 16.21) |
| Other diseases of digestive system | 43 | 1.54 | 27.88 | (20.18, 37.56) | 138 | 3.74 | 36.90 | (31.00, 43.59) | 200 | 9.39 | 21.31 | (18.46, 24.48) |
| Genitourinary system | 135 | 0.45 | 300.78 | (252.18, 356.01) | 486 | 3.83 | 126.75 | (115.73, 138.54) | 834 | 20.18 | 41.33 | (38.57, 44.23) |
| Nephritis, nephrotic syndrome, and nephrosis | 131 | 0.35 | 379.68 | (317.44, 450.54) | 474 | 3.01 | 157.24 | (143.40, 172.05) | 804 | 13.02 | 61.74 | (57.55, 66.16) |
| Other diseases of urinary system | 3 | 0.09 | 31.81 | (6.39, 92.93) | 10 | 0.78 | 12.86 | (6.16, 23.65) | 29 | 6.91 | 4.20 | (2.81, 6.03) |
| Disorders of genital organ | 1 | 0.01 | 105.45 | (1.38, 586.71) | 2 | 0.04 | 47.48 | (5.33, 171.44) | 1 | 0.25 | 3.99 | (0.05, 22.22) |
| Skin and subcutaneous Tissue | 6 | 0.07 | 83.78 | (30.59, 182.37) | 6 | 0.32 | 18.91 | (6.91, 41.16) | 18 | 1.58 | 11.43 | (6.77, 18.06) |
| Musculoskeletal system and connective tissue | 36 | 0.29 | 124.90 | (87.47, 172.92) | 24 | 1.05 | 22.79 | (14.60, 33.92) | 16 | 3.10 | 5.16 | (2.95, 8.38) |
| Congenital anomalies | 0 | 0.06 | - | - | 1 | 0.11 | 9.34 | (0.12, 51.96) | 5 | 0.08 | 62.67 | (20.20, 146.24) |
| Symptoms, signs, and ill-defined conditions | 11 | 1.35 | 8.18 | (4.08, 14.63) | 23 | 3.45 | 6.66 | (4.22, 10.00) | 32 | 15.44 | 2.07 | (1.42, 2.93) |
| Accident | 12 | 3.45 | 3.48 | (1.80, 6.08) | 28 | 6.59 | 4.25 | (2.82, 6.14) | 24 | 8.46 | 2.84 | (1.82, 4.22) |
| Suicide and self-inflicted injury | 2 | 0.98 | 2.05 | (0.23, 7.40) | 5 | 1.39 | 3.61 | (1.16, 8.42) | 1 | 1.06 | 0.94 | (0.01, 5.23) |
| Homicide and injury purposely inflicted by other persons | 0 | 0.13 | - | - | 1 | 0.16 | 6.30 | (0.08, 35.03) | 0 | 0.06 | - | - |
| Drugs, medicinal and biological substances causing adverse effects in therapeutic use | 1 | 0.02 | 51.02 | (0.67, 283.89) | 6 | 0.09 | 68.56 | (25.04, 149.23) | 5 | 0.17 | 28.69 | (9.25, 66.95) |
| Other | 8 | 2.68 | 2.99 | (1.29, 5.88) | 25 | 4.14 | 6.04 | (3.91, 8.92) | 22 | 4.32 | 5.09 | (3.19, 7.71) |

Table S5. All-cause standardized mortality ratio (SMR) of hemodialysis (HD) stratified by age.

| Causes of death | 18-49 y/o | | | | 50-64 y/o | | | | ≥ 65 y/o | | | |
|---|-----------|--------|-------|-----------------|-----------|---------|-------|----------------|----------|----------|-------|----------------|
| | Obs. | Exp. | SMR | 95%CI | Obs. | Exp. | SMR | 95%CI | Obs. | Exp. | SMR | 95%CI |
| Total | 3138 | 221.37 | 14.18 | (13.68, 14.68) | 16782 | 1597.85 | 10.50 | (10.34, 10.66) | 51563 | 12116.62 | 4.26 | (4.22, 4.29) |
| Infectious and Parasitic Diseases | 94 | 4.85 | 19.39 | (15.67, 23.73) | 560 | 34.80 | 16.09 | (14.79, 17.48) | 2072 | 407.76 | 5.08 | (4.86, 5.31) |
| Neoplasms | 345 | 70.00 | 4.93 | (4.42, 5.48) | 1976 | 677.26 | 2.92 | (2.79, 3.05) | 5715 | 3096.21 | 1.85 | (1.80, 1.89) |
| Malignancy of digestive organs and peritoneum | 137 | 18.65 | 7.34 | (6.17, 8.68) | 937 | 230.30 | 4.07 | (3.81, 4.34) | 2498 | 1097.10 | 2.28 | (2.19, 2.37) |
| Malignancy of respiratory and intrathoracic organs | 28 | 5.59 | 5.01 | (3.33, 7.24) | 187 | 90.24 | 2.07 | (1.79, 2.39) | 695 | 553.34 | 1.26 | (1.16, 1.35) |
| Malignancy of bone, connective tissue, skin, and breast | 17 | 4.13 | 4.12 | (2.40, 6.59) | 92 | 37.86 | 2.43 | (1.96, 2.98) | 169 | 90.29 | 1.87 | (1.60, 2.18) |
| Malignancy of urinary organs | 61 | 0.61 | 99.57 | (76.16, 127.91) | 302 | 12.56 | 24.05 | (21.41, 26.92) | 1159 | 122.67 | 9.45 | (8.91, 10.01) |
| Malignancy of lymphatic and hematopoietic tissue | 24 | 2.16 | 11.14 | (7.13, 16.57) | 82 | 21.70 | 3.78 | (3.01, 4.69) | 235 | 132.80 | 1.77 | (1.55, 2.01) |
| Other and unspecified sites | 78 | 12.87 | 6.06 | (4.79, 7.57) | 376 | 102.11 | 3.68 | (3.32, 4.07) | 959 | 319.54 | 3.00 | (2.81, 3.20) |
| Endocrine, nutritional, metabolic, and immunity disorders | 605 | 7.36 | 82.25 | (75.82, 89.07) | 3984 | 100.99 | 39.45 | (38.23, 40.69) | 9123 | 932.71 | 9.78 | (9.58, 9.98) |
| Diabetes mellitus | 591 | 6.03 | 97.98 | (90.24, 106.21) | 3932 | 93.75 | 41.94 | (40.64, 43.27) | 8989 | 876.57 | 10.25 | (10.04, 10.47) |
| Disorders of thyroid gland | 2 | 0.31 | 6.55 | (0.74, 23.65) | 7 | 1.53 | 4.58 | (1.84, 9.44) | 38 | 10.97 | 3.46 | (2.45, 4.75) |

| | | | | | | | | | | | | |
|---|-----|-------|--------|------------------|------|--------|--------|------------------|-------|---------|-------|----------------|
| Disorders of other endocrine glands | 12 | 1.02 | 11.78 | (6.08, 20.57) | 45 | 5.71 | 7.89 | (5.75, 10.55) | 96 | 45.17 | 2.13 | (1.72, 2.60) |
| Blood and blood-forming organs | 8 | 0.54 | 14.71 | (6.33, 28.98) | 32 | 3.55 | 9.00 | (6.16, 12.71) | 89 | 36.49 | 2.44 | (1.96, 3.00) |
| Mental disorders | 1 | 2.38 | 0.42 | (0.01, 2.34) | 6 | 8.16 | 0.73 | (0.27, 1.60) | 44 | 110.46 | 0.40 | (0.29, 0.53) |
| Nervous system and sense organs | 41 | 3.06 | 13.41 | (9.63, 18.20) | 120 | 17.76 | 6.76 | (5.60, 8.08) | 292 | 167.44 | 1.74 | (1.55, 1.96) |
| Circulatory system | 681 | 31.16 | 21.85 | (20.24, 23.56) | 3528 | 288.01 | 12.25 | (11.85, 12.66) | 9815 | 3049.19 | 3.22 | (3.16, 3.28) |
| Hypertensive disease | 94 | 2.17 | 43.29 | (34.98, 52.98) | 495 | 27.85 | 17.77 | (16.24, 19.41) | 1663 | 417.20 | 3.99 | (3.80, 4.18) |
| Ischemic heart disease | 158 | 6.47 | 24.41 | (20.75, 28.53) | 1243 | 77.98 | 15.94 | (15.07, 16.85) | 3543 | 773.02 | 4.58 | (4.43, 4.74) |
| Cerebrovascular disease | 268 | 10.89 | 24.60 | (21.74, 27.73) | 1084 | 101.29 | 10.70 | (10.07, 11.36) | 2182 | 1049.59 | 2.08 | (1.99, 2.17) |
| Other diseases of circulatory system | 161 | 11.62 | 13.85 | (11.79, 16.17) | 706 | 80.89 | 8.73 | (8.10, 9.40) | 2427 | 809.39 | 3.00 | (2.88, 3.12) |
| Respiratory system | 94 | 6.28 | 14.96 | (12.09, 18.30) | 639 | 71.24 | 8.97 | (8.29, 9.69) | 3858 | 1758.29 | 2.19 | (2.13, 2.26) |
| Pneumonia and influenza | 60 | 3.44 | 17.42 | (13.29, 22.42) | 440 | 36.90 | 11.92 | (10.84, 13.09) | 2732 | 918.51 | 2.97 | (2.86, 3.09) |
| Chronic obstructive pulmonary disease and allied conditions | 6 | 1.27 | 4.71 | (1.72, 10.25) | 42 | 19.40 | 2.17 | (1.56, 2.93) | 486 | 600.75 | 0.81 | (0.74, 0.88) |
| Other diseases of respiratory system | 28 | 1.57 | 17.89 | (11.89, 25.86) | 157 | 14.95 | 10.50 | (8.92, 12.28) | 640 | 239.02 | 2.68 | (2.47, 2.89) |
| Digestive system | 251 | 28.03 | 8.95 | (7.88, 10.13) | 1137 | 129.46 | 8.78 | (8.28, 9.31) | 3159 | 632.29 | 5.00 | (4.82, 5.17) |
| Chronic liver disease and cirrhosis | 120 | 17.07 | 7.03 | (5.83, 8.41) | 495 | 78.46 | 6.31 | (5.77, 6.89) | 877 | 228.46 | 3.84 | (3.59, 4.10) |
| Diseases of esophagus, stomach, and duodenum | 9 | 0.68 | 13.33 | (6.08, 25.31) | 53 | 5.86 | 9.05 | (6.78, 11.84) | 181 | 65.75 | 2.75 | (2.37, 3.18) |
| Noninfective enteritis and colitis | 2 | 0.12 | 17.00 | (1.91, 61.37) | 27 | 1.17 | 23.08 | (15.21, 33.58) | 94 | 15.08 | 6.23 | (5.04, 7.63) |
| Other diseases of digestive system | 120 | 10.17 | 11.80 | (9.78, 14.11) | 562 | 43.98 | 12.78 | (11.74, 13.88) | 2007 | 323.00 | 6.21 | (5.94, 6.49) |
| Genitourinary system | 832 | 3.15 | 264.15 | (246.5, 282.72) | 3943 | 46.41 | 84.96 | (82.33, 87.65) | 14967 | 704.66 | 21.24 | (20.90, 21.58) |
| Nephritis, nephrotic syndrome, and nephrosis | 813 | 2.50 | 325.55 | (303.56, 348.72) | 3849 | 37.12 | 103.69 | (100.44, 107.02) | 14453 | 449.15 | 32.18 | (31.66, 32.71) |
| Other diseases of urinary system | 18 | 0.59 | 30.37 | (17.99, 48.01) | 81 | 8.79 | 9.22 | (7.32, 11.46) | 490 | 246.08 | 1.99 | (1.82, 2.18) |
| Disorders of genital organ | 1 | 0.06 | 16.70 | (0.22, 92.90) | 13 | 0.50 | 25.77 | (13.71, 44.06) | 24 | 9.43 | 2.54 | (1.63, 3.79) |
| Skin and subcutaneous tissue | 33 | 0.66 | 50.12 | (34.49, 70.38) | 96 | 4.17 | 23.01 | (18.64, 28.10) | 286 | 58.04 | 4.93 | (4.37, 5.53) |
| Musculoskeletal system and connective tissue | 101 | 1.54 | 65.43 | (53.29, 79.5) | 173 | 11.25 | 15.38 | (13.17, 17.85) | 348 | 102.20 | 3.41 | (3.06, 3.78) |
| Congenital anomalies | 5 | 0.37 | 13.55 | (4.37, 31.61) | 31 | 1.11 | 27.86 | (18.92, 39.54) | 31 | 2.23 | 13.93 | (9.46, 19.77) |
| Symptoms, signs, and ill-defined conditions | 59 | 11.16 | 5.29 | (4.02, 6.82) | 213 | 47.09 | 4.52 | (3.94, 5.17) | 687 | 620.05 | 1.11 | (1.03, 1.19) |
| Accident | 96 | 25.75 | 3.73 | (3.02, 4.55) | 377 | 86.24 | 4.37 | (3.94, 4.84) | 646 | 264.03 | 2.45 | (2.26, 2.64) |
| Suicide and self-inflicted injury | 32 | 9.44 | 3.39 | (2.32, 4.79) | 96 | 23.35 | 4.11 | (3.33, 5.02) | 81 | 40.77 | 1.99 | (1.58, 2.47) |
| Homicide and injury purposely inflicted by other persons | 0 | 1.04 | - | - | 2 | 2.07 | 0.97 | (0.11, 3.49) | 4 | 2.04 | 1.96 | (0.53, 5.03) |
| Drugs, medicinal and biological substances causing adverse effects in therapeutic use | 14 | 0.10 | 139.26 | (76.07, 233.66) | 47 | 0.87 | 54.32 | (39.91, 72.24) | 138 | 4.72 | 29.23 | (24.55, 34.53) |
| Other | 34 | 14.48 | 2.35 | (1.63, 3.28) | 187 | 43.69 | 4.28 | (3.69, 4.94) | 486 | 122.13 | 3.98 | (3.63, 4.35) |