

Supplementary Table 1. Countries Grouped by World Region

World Region	Countries
East Asia & Pacific	Asia NES, Brunei, Cambodia, People's Republic of China, Cook Islands, Fiji, French Polynesia, Guam, Hong Kong, Republic of Indonesia, Japan, People's, Democratic Republic of Korea, Republic of Korea, Macao, Macau Sar, Malaysia, Laos, People's Republic of Mongolia, Myanmar (Burma), Nauru, Papua New Guinea, Philippines, New Caledonia, American Samoa, Western Samoa, Singapore, Solomon Islands, Taiwan, Thailand, Tibet, Tonga, Vanuatu, Socialist Republic of Vietnam, The Solomons, Tuvalu, Kiribati, Republic of Palau
Eastern Europe & Central Asia	Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, French Guiana, Georgia, Kazakhstan, Latvia, Lithuania, Republic of Montenegro, Poland, Moldova, Romania, Russia, Serbia and Montenegro, Republic of Serbia, Slovak Republic, Slovenia, Tadjikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, FYR Macedonia, Republic of Kosovo, Kyrgyzstan
Latin America & Caribbean	Anguilla, Antigua and Barbuda, Argentina, Aruba, The Bahama Islands, Barbados, Belize, Bermuda, Bolivia, Brazil, Cayman Islands, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, The Netherlands Antilles, Nicaragua, Panama Canal Zone, Republic of Panama, Paraguay, Peru, Puerto Rico, St. Kitts-Nevis, St. Lucia, St. Vincent and the Grenadines, Surinam, Republic of Trinidad & Tobago, Turks and Caicos Islands, Uruguay, Venezuela, British Virgin Islands, U.S Virgin Islands, Nevis, Falkland Islands
Middle East & North Africa	Algeria, Bahrain, Bhutan, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, United Arab Emirates, Western Sahara, People's Democratic Republic of Yemen, Republic of Yemen, Syria, Palestinian Authority (Gaza/West Bank)
South Asia	Afghanistan, Bangladesh, India, Republic of Maldives, Nepal, Pakistan, Sri Lanka, Sikkim

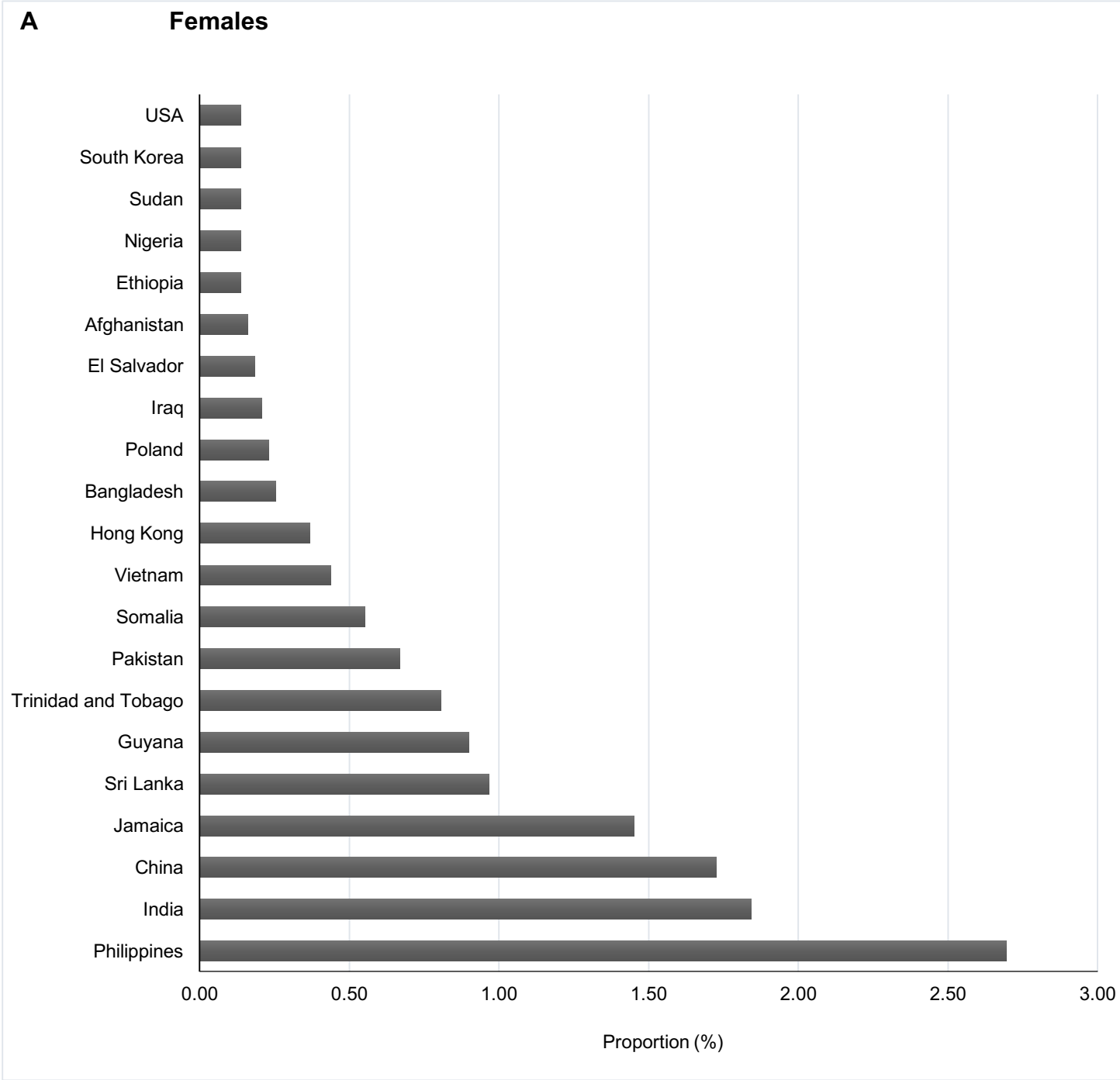
Western Europe, USA, Australia & New Zealand	Andorra, Austria, Azores, Belgium, Denmark, Finland, France, Democratic Republic of Germany, Federal Republic of Germany, Gibraltar, Greece, Greenland, Hungary, Iceland, Republic of Ireland, Italy, Liechtenstein, Luxembourg, Madeira, Malta, Monaco, The Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom and Colonies, Portugal, San Marino, Czechoslovakia, Union of Soviet Socialist Republics, Yugoslavia, Canary Islands, Holy See, Australia, New Zealand, United States of America
Sub-Saharan Africa	Angola, Peoples Republic of Benin, Republic of Botswana, Burkina-Faso, Burundi, Federal Republic of Cameroon, Cape Verde Islands, Central Africa Republic, Republic of Chad, Comoros, Democratic Republic of Congo, People's Republic of the Congo, Eritrea, Ethiopia, Gabon Republic, Gambia, Equatorial Guinea, Republic of Guinea, Guinea-Bissau, Ghana, Kenya, Lesotho, Liberia, Madagascar, Malawi, Republic of Mali, Mauritania, Mauritius, Mozambique, Namibia, Republic of the Niger, Nigeria, Reunion, Rwanda, Sao Tome E Principe, Senegal, Seychelles, Sierra Leone, Democratic Republic of Somalia, Republic of South Africa, Democratic Republic of Sudan, Swaziland, United Republic of Tanzania, Republic of Togo, Uganda, Zambia, Zimbabwe, Republic of Djibouti, Republic of Ivory Coast
Other	Africa NES, Canada, Commonwealth of the Northern Mariana Island, Country not stated, Europe NES, Pitcairn Island, St. Helena, Ocean NES

Supplementary Table 2. Canadian Organ Replacement Register Codes for Maintenance (chronic) Dialysis

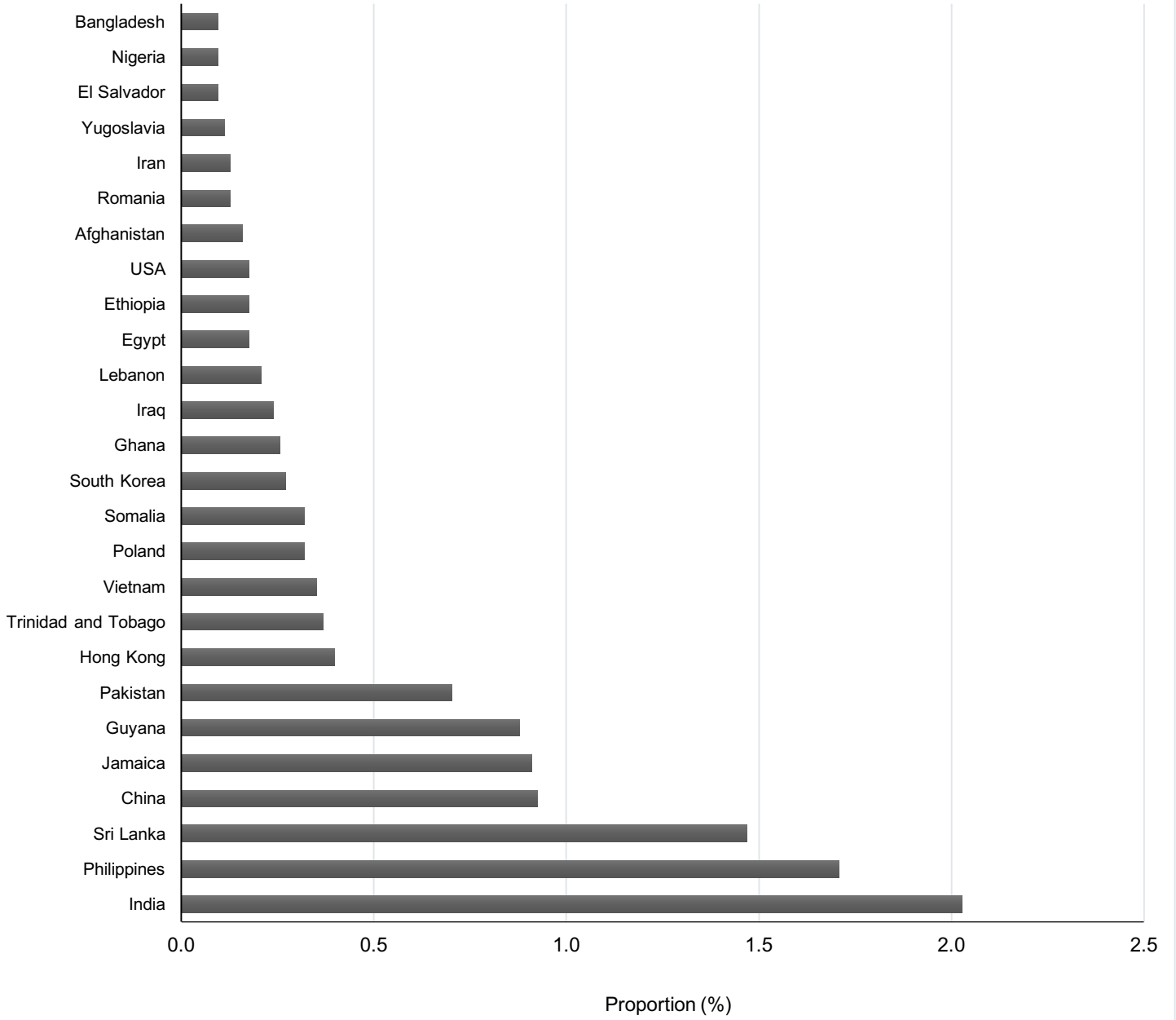
Modality	Treatment Code
Conventional HD	111, 112, 113, 121, 122, 123, 131, 132, 133, 211, 221, 231, 311, 312, 313, 321, 322, 323, 331, 332, 333
Home HD	413, 423, 433
PD	141, 151, 152, 241, 242, 251, 252, 443, 453
Other	060

Abbreviations: HD, hemodialysis; PD, peritoneal dialysis.

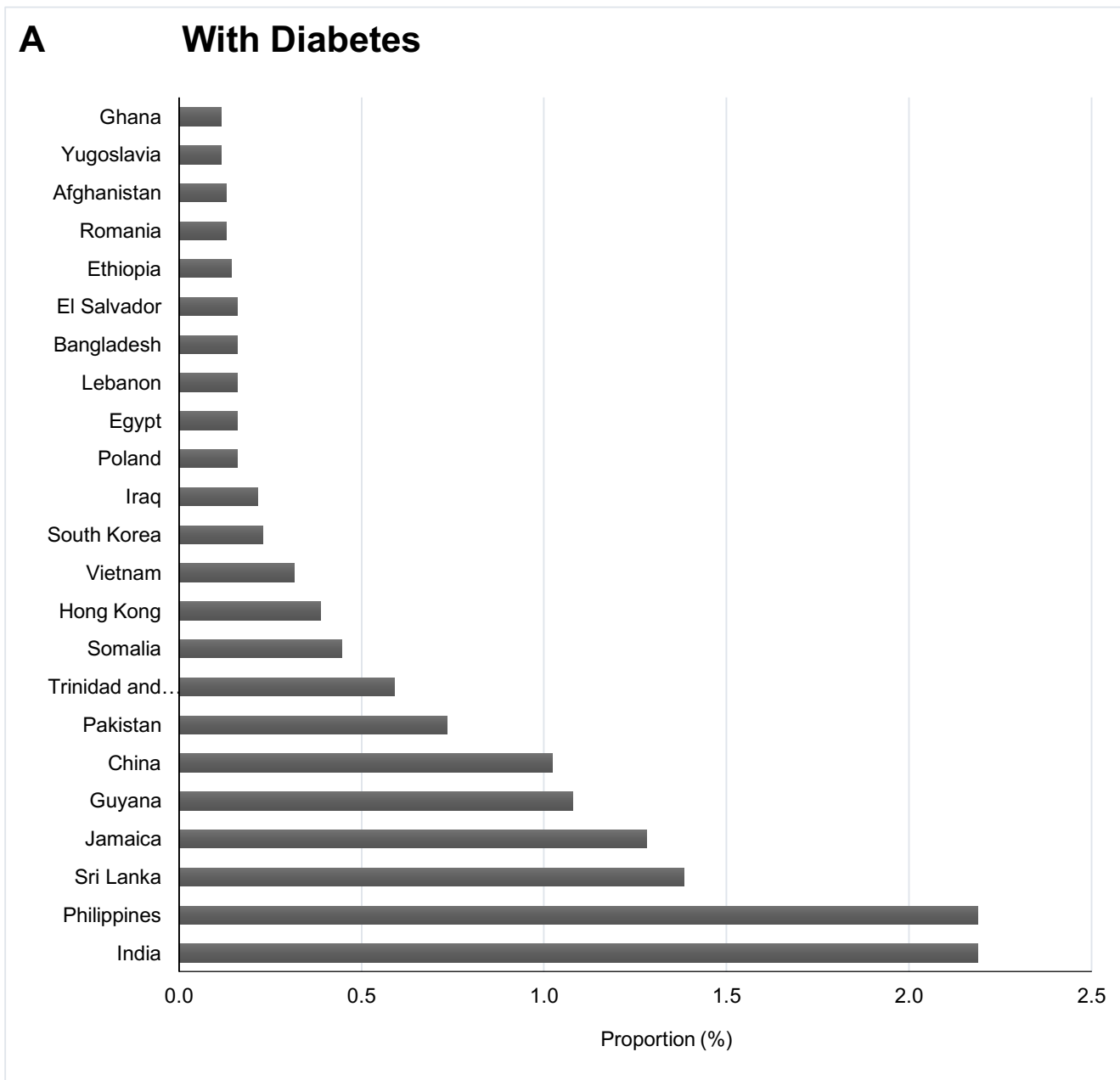
Supplementary Figure 1. Additional analysis restricted to those with end-stage kidney disease requiring maintenance dialysis, showing the proportion by immigrant country of birth, stratified by females (A) and males (B)



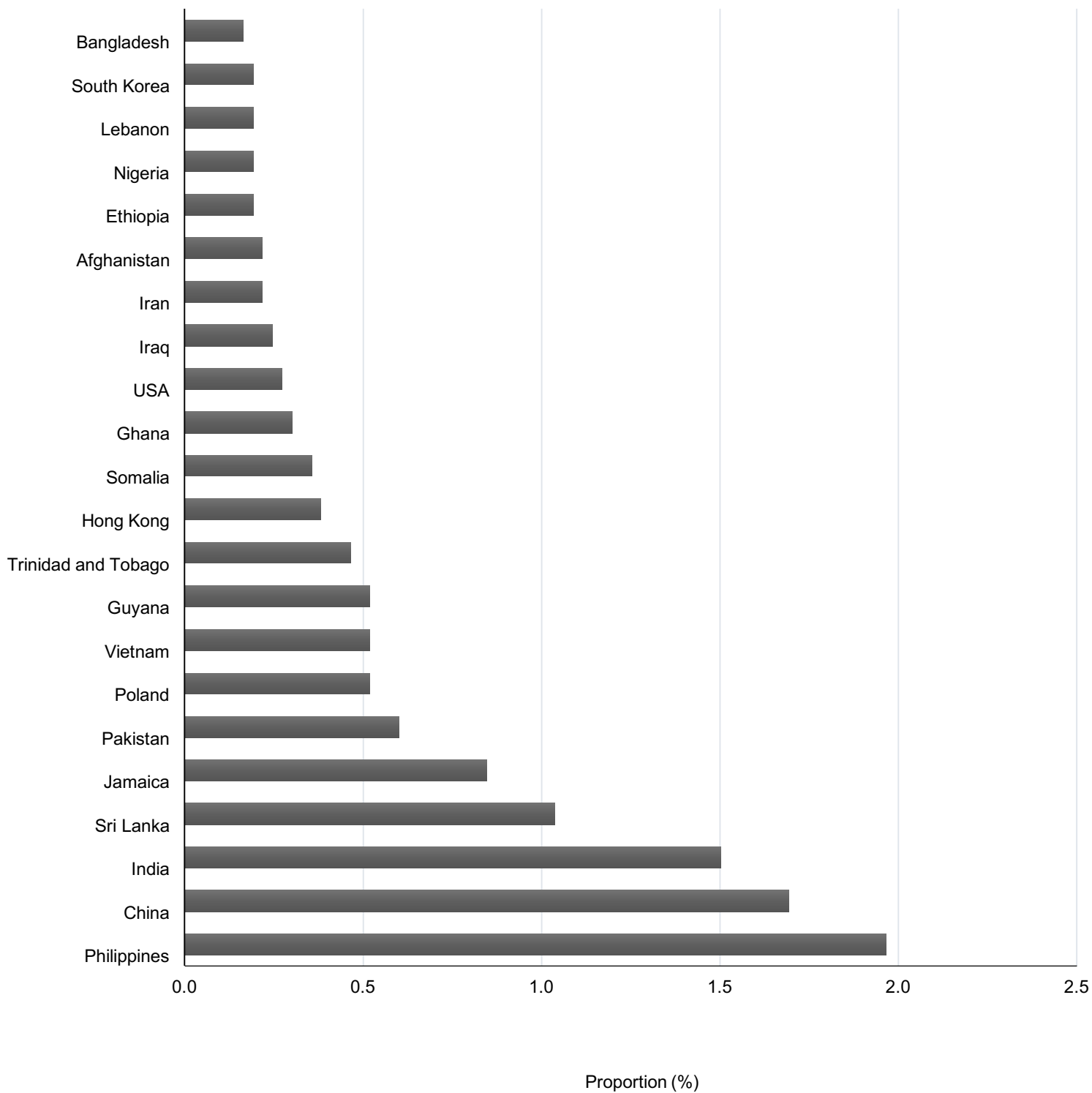
B **Males**



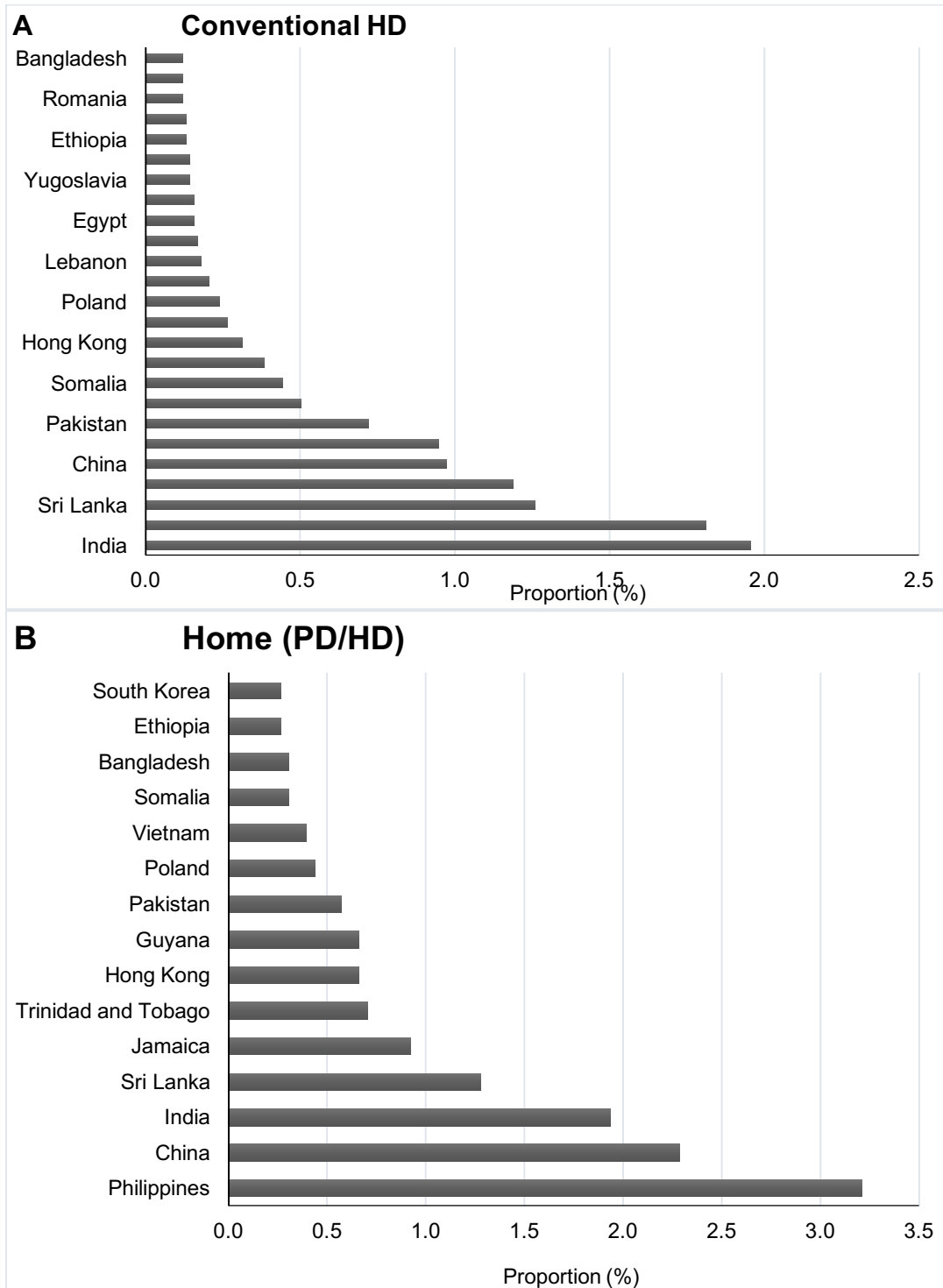
Supplementary Figure 2. Additional analysis restricted to those with end-stage kidney disease requiring maintenance dialysis, showing the proportion by immigrant country of birth, stratified by those with (A) and without (B) diabetes mellitus.



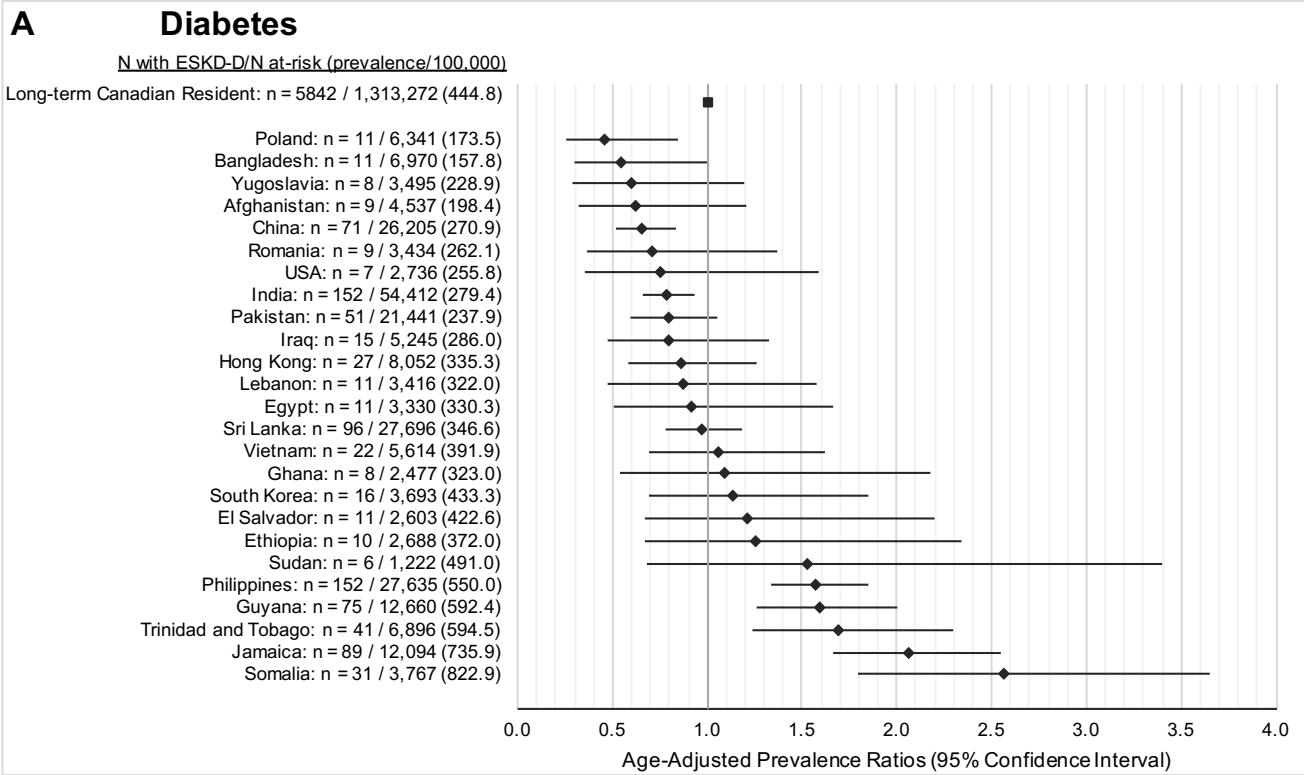
B No Diabetes



Supplementary Figure 3. Additional analysis restricted to those with end-stage kidney disease requiring maintenance dialysis, showing the proportion by immigrant country of birth, stratified by dialysis modality: conventional hemodialysis (HD) (A) and peritoneal dialysis (PD)/home hemodialysis (HD) (B)



Supplementary Figure 4. Age-adjusted prevalence ratios of end-stage kidney disease requiring maintenance dialysis, by country of birth, stratified by those with (A) and without

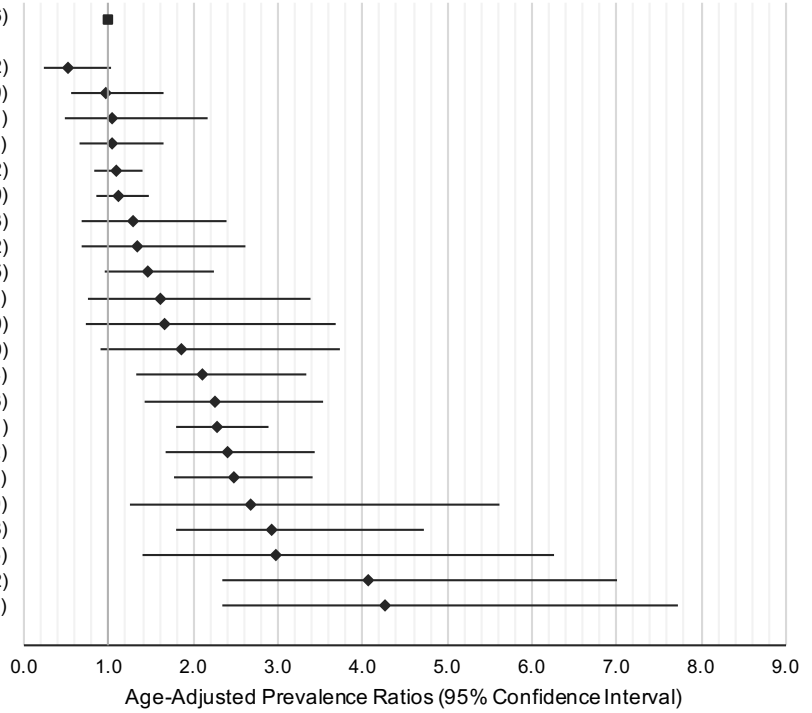


B No Diabetes

N with ESKD-D/N at-risk (prevalence/100,000)

Long-term Canadian Resident: n = 3,067 / 7,547,011 (40.6)

Iran: n = 8 / 52,479 (15.2)
 Hong Kong: n = 14 / 42,543 (32.9)
 South Korea: n = 7 / 25,814 (27.1)
 Poland: n = 19 / 53,721 (35.4)
 China: n = 62 / 166,835 (37.2)
 India: n = 55 / 177,933 (30.9)
 USA: n = 10 / 28,326 (35.3)
 Iraq: n = 9 / 26,326 (34.2)
 Pakistan: n = 22 / 74,631 (29.5)
 Lebanon: n = 7 / 15,579 (44.9)
 Bangladesh: n = 6 / 18,197 (33.0)
 Afghanistan: n = 8 / 20,572 (38.9)
 Guyana: n = 19 / 30,440 (62.4)
 Vietnam: n = 19 / 27,409 (69.3)
 Philippines: n = 72 / 115,922 (62.1)
 Jamaica: n = 31 / 50,683 (61.2)
 Sri Lanka: n = 38 / 57,948 (65.6)
 Ethiopia: n = 7 / 11,669 (60.0)
 Trinidad and Tobago: n = 17 / 20,790 (81.8)
 Nigeria: n = 7 / 11,751 (59.6)
 Somalia: n = 13 / 13,235 (98.2)
 Ghana: n = 11 / 10,781 (102.0)



Long-term Canadian residents are the referent. Only countries with 6 or more patients with end-stage kidney disease requiring maintenance dialysis were reported for ICES privacy reasons.

Abbreviations: ESKD-D – end stage kidney disease receiving maintenance hemodialysis, USA-United States of America.

Supplementary Table 3. Characteristics of immigrants and long-term residents. All data are presented as (%) unless otherwise stated.

	Immigrant	Long-term resident	Standardized Difference (%)
Total N	1,902,394	8,860,283	
Demographics			
Age, years (mean, SD)	44 (±15)	48 (±19)	23
18-29	340,271 (17.9)	1,807,000 (20.4)	6
30-39	424,286 (22.3)	1,352,135 (15.3)	18
40-49	473,535 (24.9)	1,452,011 (16.4)	21
50-59	368,244 (19.4)	1,645,862 (18.6)	2
60-69	169,178 (8.9)	1,306,004 (14.7)	18
70-79	84,927 (4.5)	778,893 (8.8)	17
80-89	36,507 (1.9)	423,632 (4.8)	16
≥ 90	5,446 (0.3)	94,746 (1.1)	10
Female	1,002,369 (52.7)	4,588,899 (51.8)	2
Income quintile	5,019 (0.3)	39,102 (0.4)	2
1 (lowest)	474,174 (24.9)	1,547,503 (17.5)	18
2	416,365 (21.9)	1,688,484 (19.1)	7
3	397,192 (20.9)	1,749,994 (19.8)	3
4	366,204 (19.2)	1,904,962 (21.5)	6
5 (highest)	243,440 (12.8)	1,930,238 (21.8)	24
Rural	23,495 (1.2)	1,190,362 (13.4)	48
Comorbidities			
Diabetes in past 10 years	330,686 (17.4)	1,331,314 (15.0)	7
Myocardial Infarction in past 2 years	4,078 (0.2)	38,961 (0.4)	4
Stroke in past 2 years	2,620 (0.1)	25,083 (0.3)	4
Hypertension in past 2 years	341,482 (18.0)	1,706,317 (19.3)	3
Healthcare utilization in past 1 year			
Previous visits to nephrologist	17,470 (0.9)	96,717 (1.1)	2
Previous visits to			

primary care provider			
0	355,545 (18.7)	1,901,193 (21.5)	7
1-2	467,371 (24.6)	2,448,268 (27.6)	7
3-4	376,625 (19.8)	1,702,393 (19.2)	2
5+	702,853 (36.9)	2,808,429 (31.7)	11
Previous hospitalizations			
0	1,820,372 (95.7)	8,338,519 (94.1)	7
1	70,791 (3.7)	413,823 (4.7)	5
2	8,271 (0.4)	73,087 (0.8)	5
3+	2,960 (0.2)	34,854 (0.4)	4

Supplementary Table 4. Characteristics of immigrants with and without end-stage kidney disease requiring maintenance dialysis (ESRD-D). All data are presented as a number (%) unless otherwise stated.

Characteristic	ESKD-D (N = 1,700)	No ESKD-D (N = 1,900,694)	Standardized Difference (%)
Demographics			
Age, years (mean, SD)	62.4 ± 15.3	44.4 ± 15.2	118
18-29	44 (2.6)	340,227 (17.9)	52
30-39	100 (5.9)	424,186 (22.3)	48
40-49	199 (11.7)	473,336 (24.9)	35
50-59	374 (22.0)	367,870 (19.4)	6
60-69	380 (22.4)	168,798 (8.9)	38
70-79	362 (21.3)	84,565 (4.4)	52
80-89	215 (12.6)	36,292 (1.4)	42
≥ 90	26 (1.5)	5,420 (0.3)	31
Female Sex	751 (44.2)	10,016 (52.7)	17
Income Quintile			
First (lowest)	609 (35.8)	473,565 (24.9)	24
Second	404 (23.8)	415,961 (21.9)	5
Third	322 (19.0)	401,889 (21.2)	5
Fourth	223 (13.1)	365,981 (19.3)	17

Fifth (highest)	142 (8.4)	243,298 (12.8)	14
Rural Residence ^a	9 (0.5)	23,486 (1.2)	8
Immigrant Characteristics			
World Region of Origin			
East Asia, Pacific	503 (29.6)	485,830 (25.6)	9
Eastern Europe, Central Asia	71 (4.2)	206,813 (10.9)	26
Latin America, Caribbean	374 (22.0)	267,921 (14.1)	21
Middle East, North Africa	85 (5.0)	178,917 (9.4)	17
South Asia	451 (26.5)	468,048 (24.6)	4
Sub-Saharan Africa	142 (8.4)	113,183 (6.0)	9
Western Europe	74 (4.4)	179,982 (9.5)	20
Canadian Language Ability			
English	1,037 (61.0)	1,143,271 (60.2)	2
French	16 (0.9)	16,960 (0.9)	0
Both English and French	18 (1.1)	49,205 (2.6)	11
Neither	629 (37.0)	691,258 (36.4)	10
Education			
None	132 (7.8)	162,424 (8.5)	3
Secondary or less	985 (57.9)	886,980 (46.7)	23
Formal trade cert. or apprenticeship	128 (7.5)	117,382 (6.2)	5
Non-university cert. or diploma	99 (5.8)	141,787 (7.5)	7
Some university, no degree	85 (5.0)	76,652 (4.0)	5
Bachelor's degree	207 (12.2)	369,634 (19.4)	20
Some post-grad, no degree	6 (0.4)	17,470 (0.9)	6
Master's degree	48 (2.8)	110,798 (5.8)	15
Doctorate	10 (0.6)	17,494 (0.9)	3
Unknown/missing	0 (0.0)	73 (0.0)	3
Skill Level			
Skill level 0-Managerial	36 (2.1)	41,127 (2.2)	1
Skill level A-Professional	74 (4.4)	213,550 (11.2)	26
Skill level B-Skilled and Technical	170 (10.0)	165,087 (8.7)	4
Skill level C-Intermediate and Clerical	167 (9.8)	97,269 (5.1)	18
Skill level D-Elemental and Laborers	49 (2.9)	24,939 (1.3)	11
Children (≤ 15 years of age)	49 (2.9)	296,229 (15.6)	45
New Workers (≥ 15 years of age)	539 (31.7)	525,675 (27.7)	9
Industrial Codes (≥ 15 years of age)	20 (1.2)	7,467 (0.4)	9
Students (≥ 15 years of age)	63 (3.7)	199,382 (10.5)	27

Retirees (≥ 15 years of age)	201 (11.8)	60,572 (3.2)	33
Other Non-workers (≥ 15 years of age)	332 (19.5)	268,814 (14.1)	14
Unknown/missing	0 (0.0)	583 (0.0)	3
Marital Status			
Single	366 (21.5)	782,580 (41.2)	43
Married or Common-law	1,150 (67.6)	10,445 (55.0)	26
Separated, Divorced, Widowed	184 (10.8)	73,241 (3.9)	27
Unknown/Missing	0 (0.0)	292 (0.0)	14
Time since Immigration, years (mean, SD)			
0-4	98 (5.8)	260,064 (13.7)	27
5-9	203 (11.9)	385,080 (20.3)	23
10-14	252 (14.8)	400,727 (21.1)	16
15-19	342 (20.1)	341,510 (18.0)	5
≥ 20	805 (47.4)	513,313 (27.0)	43
Refugee Status	321 (18.9)	309,964 (16.3)	7
Comorbidities			
Diabetes (in past 10 years)	1,111 (65.4)	329,575 (17.3)	112
Myocardial Infarction (in past 2 years)	123 (7.2)	3,955 (0.2)	38
Stroke (in past 2 years)	38 (2.2)	2,582 (0.1)	20
Hypertension (in past 2 years)	1,157 (68.1)	340,325 (17.9)	118
Healthcare Utilization (in past 1 year)			
≥ 1 Previous Visits to Nephrologist	1400 (82.4)	16,070 (0.8)	295
Previous Visits to Primary Care Provider (mean, SD)	8.2 \pm 13.1	4.5 \pm 5.2	38
0	278 (16.4)	355,267 (18.7)	6
1-2	344 (20.2)	467,027 (24.6)	11
3-4	266 (15.6)	376,359 (19.8)	11
5+	812 (47.8)	702,041 (36.9)	22
Previous Hospitalizations (mean, SD)			
0	944 (55.5)	1,819,428 (95.7)	106
1	402 (23.6)	70,389 (3.7)	61
2	164 (9.6)	8,107 (0.4)	43
3+	190 (11.2)	2,770 (0.1)	50

^a Refers to location of residence with a population size < 10,000 persons.

Abbreviations: SD, standard deviation.

Supplementary Table 5: Age-adjusted prevalence ratios of end-stage kidney disease requiring maintenance dialysis, by region of immigration stratified by income quintile at dialysis initiation.

Income quintile	Immigrant World Region	Age-adjusted PR	L 95% CI	U 95% CI	Interaction p-value
1 (lowest)	East Asia & Pacific	1.17	0.99	1.39	0.32
	Eastern Europe & Central Asia	0.55	0.33	0.91	
	Latin America & Caribbean	2.32	1.97	2.73	
	Middle East & North Africa	0.58	0.36	0.93	
	South Asia	1.12	0.94	1.34	
	Sub-Saharan Africa	2.59	2.04	3.30	
	Western Europe, USA, Australia & New Zealand	0.55	0.33	0.91	
	Resident	1.00	REF	REF	
2	East Asia & Pacific	1.16	0.96	1.40	
	Eastern Europe & Central Asia	0.62	0.34	1.12	
	Latin America & Caribbean	2.07	1.65	2.59	
	Middle East & North Africa	0.89	0.53	1.48	
	South Asia	1.28	1.06	1.55	
	Sub-Saharan Africa	1.58	0.93	2.68	
	Western Europe, USA, Australia & New Zealand	0.62	0.36	1.07	
	Resident	1.00	REF	REF	
3	East Asia & Pacific	1.44	1.18	1.77	
	Eastern Europe & Central Asia	0.55	0.28	1.05	
	Latin America & Caribbean	1.75	1.31	2.33	
	Middle East & North Africa	0.71	0.40	1.24	
	South Asia	1.44	1.18	1.75	
	Sub-Saharan Africa	2.46	1.42	4.24	
	Western Europe, USA, Australia & New Zealand	0.63	0.35	1.15	
	Resident	1.00	REF	REF	
4	East Asia & Pacific	1.21	0.95	1.54	
	Eastern Europe & Central Asia	0.46	0.23	0.93	
	Latin America & Caribbean	1.84	1.28	2.66	
	Middle East & North Africa	1.04	0.65	1.65	
	South Asia	1.35	1.05	1.74	
	Sub-Saharan Africa	2.57	1.34	4.95	
	Western Europe, USA, Australia & New Zealand	0.81	0.48	1.37	
	Resident	1.00	REF	REF	
5 (highest)	East Asia & Pacific	1.50	1.12	2.00	
	Eastern Europe & Central Asia	0.51	0.21	1.23	
	Latin America & Caribbean	2.31	1.39	3.84	
	Middle East & North Africa	0.75	0.37	1.50	
	South Asia	2.24	1.64	3.06	

Sub-Saharan Africa	2.12	0.68	6.57
Western Europe, USA, Australia & New Zealand	0.29	0.11	0.77
Resident	1.00	REF	REF

Supplementary Table 6: Censoring events among incident patients by world region

Immigrant World Region	Death	%	Preemptive-Transplant	%
	East Asia & Pacific	10117	2.11%	75
Eastern Europe & Central Asia	4476	2.64%	22	0.01%
Latin America & Caribbean	3920	2.06%	31	0.02%
Middle East & North Africa	2247	1.41%	19	0.01%
South Asia	8552	1.89%	101	0.02%
Western Europe, USA, Australia & New Zealand	5440	3.99%	30	0.02%
Sub-Saharan Africa	1723	1.72%	27	0.03%

Supplementary Table 7: Age-adjusted hazard ratios of incidence of end-stage kidney disease requiring maintenance dialysis, by region of immigration stratified by gender and diabetes

FEMALES

Immigrant World Region	HR	L 95% CI	U 95% CI	p-value
East Asia & Pacific	1.70	1.29	2.25	0.0002
Eastern Europe & Central Asia	0.88	0.61	1.28	0.51
Latin America & Caribbean	3.11	2.33	4.17	<0.0001
Middle East & North Africa	1.20	0.82	1.77	0.34
South Asia	2.25	1.69	2.98	<0.0001
Western Europe, USA, Australia & New Zealand	1.00	REF	REF	REF
Sub-Saharan Africa	3.84	2.78	5.31	<0.0001
Other				

MALES

Immigrant World Region	HR	L 95% CI	U 95% CI	p-value
East Asia & Pacific	1.24	0.97	1.58	0.08

East Asia & Pacific	87	12.4%	87	12.4%	111	15.8%	416	59.3%
Eastern Europe & Central Asia	22	17.5%	16	12.7%	19	15.1%	69	54.8%
Latin America & Caribbean	50	11.1%	65	14.4%	58	12.9%	278	61.6%
Middle East & North Africa	12	9.2%	21	16.2%	22	16.9%	75	57.7%
South Asia	75	10.1%	81	10.9%	113	15.2%	474	63.8%
Western Europe, USA, Australia & New Zealand	16	11.5%	22	15.8%	25	18.0%	76	54.7%
Sub-Saharan Africa	20	9.1%	35	16.0%	30	13.7%	134	61.2%

Immigrant World Region	Nephrology Visits 365 days prior to ESKD-D							
	0 visits		1 visit		2 visits		3+ visits	
	N	%	N	%	N	%	N	%
East Asia & Pacific	0	0.0%	24	3.9%	28	4.6%	562	91.5%
Eastern Europe & Central Asia	0	0.0%	10	9.6%	7	6.7%	87	83.7%
Latin America & Caribbean	0	0.0%	21	5.2%	15	3.7%	365	91.0%
Middle East & North Africa	0	0.0%	small cells				104	88.1%
South Asia	0	0.0%	25	3.7%	29	4.3%	614	91.9%
Western Europe, USA, Australia & New Zealand	0	0.0%	small cells				114	92.7%
Sub-Saharan Africa	0	0.0%	18	9.0%	11	5.5%	170	85.4%

Abbreviation: ESKD-D, end stage kidney disease requiring maintenance dialysis