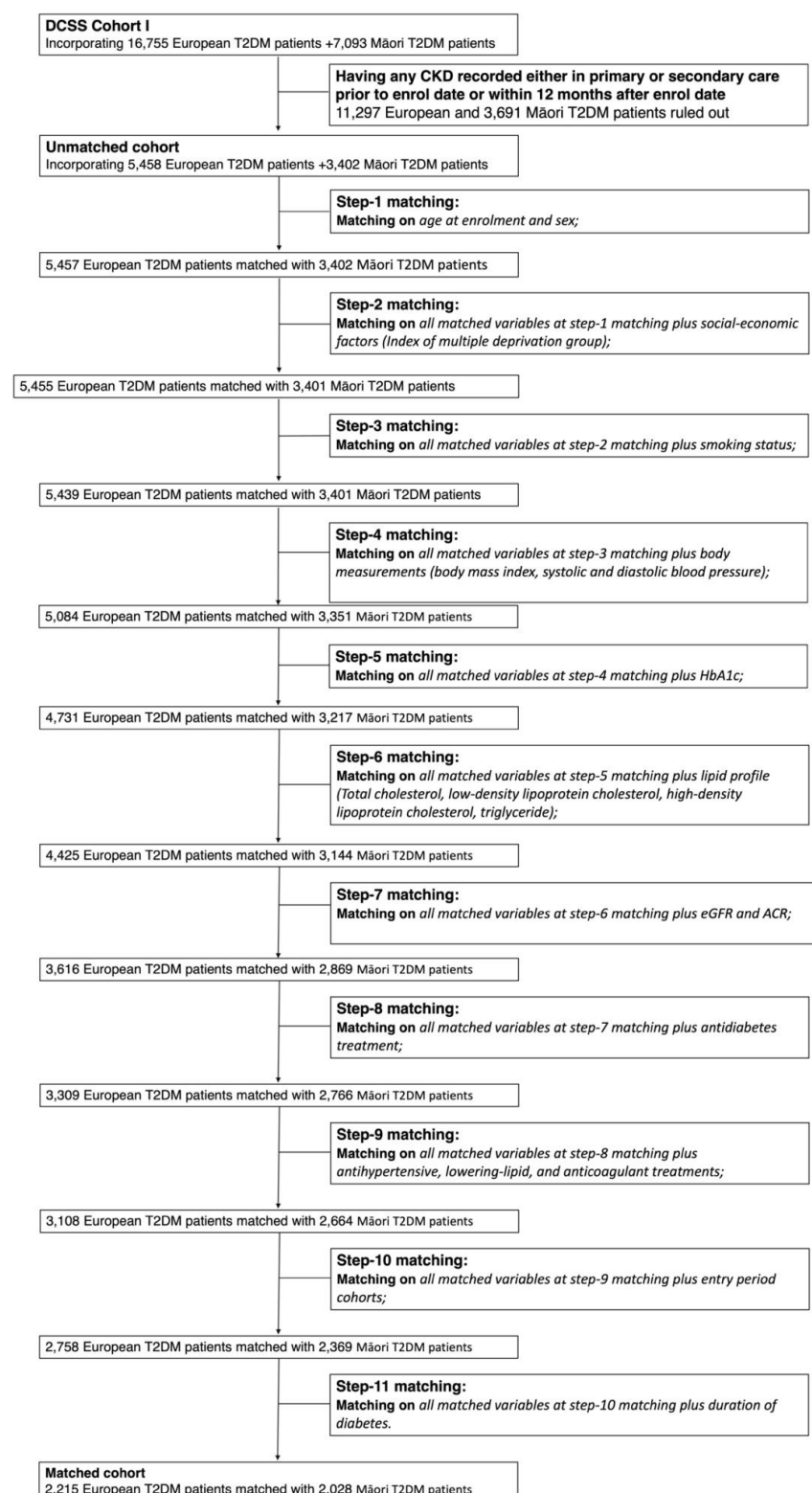
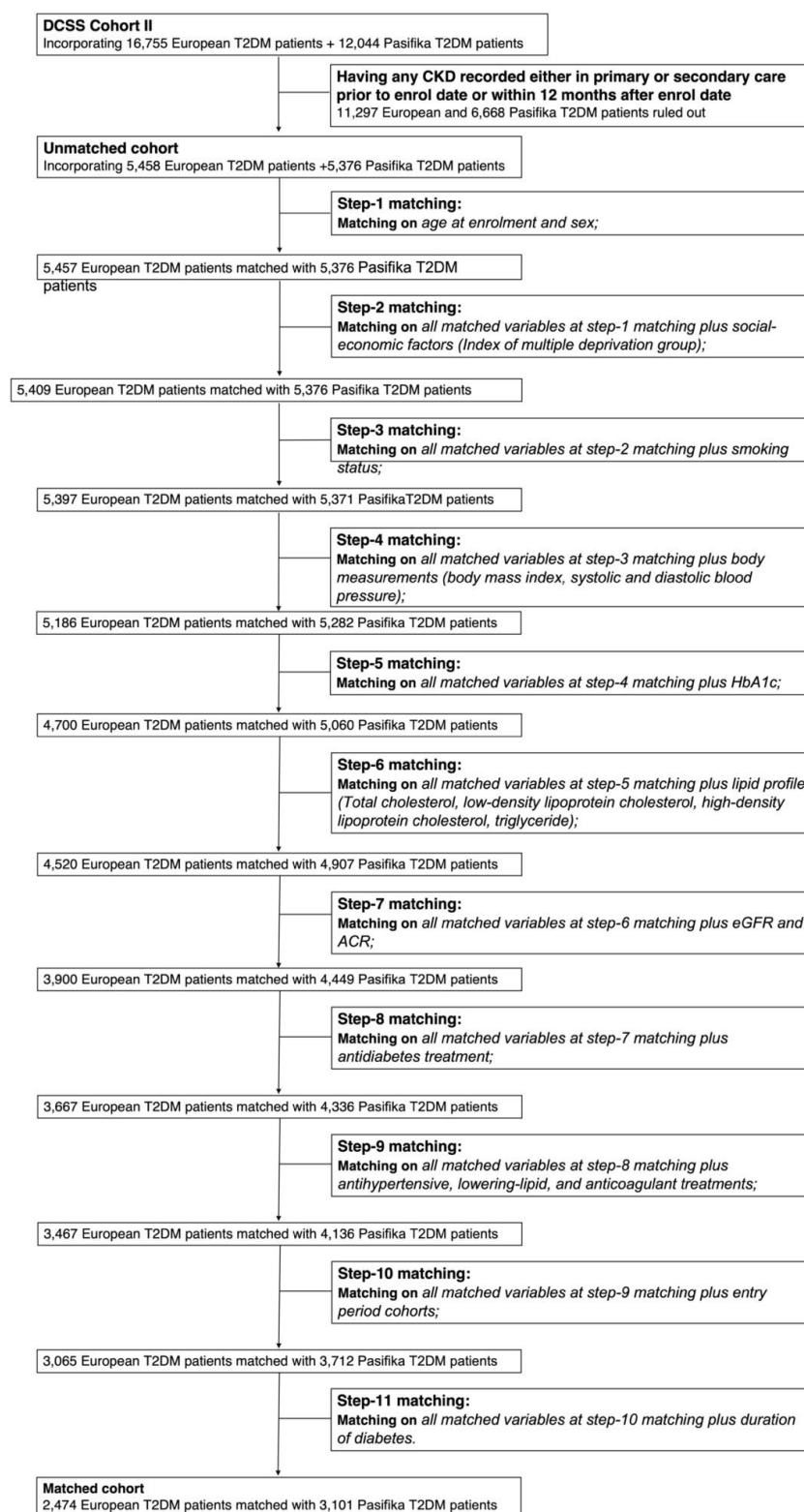
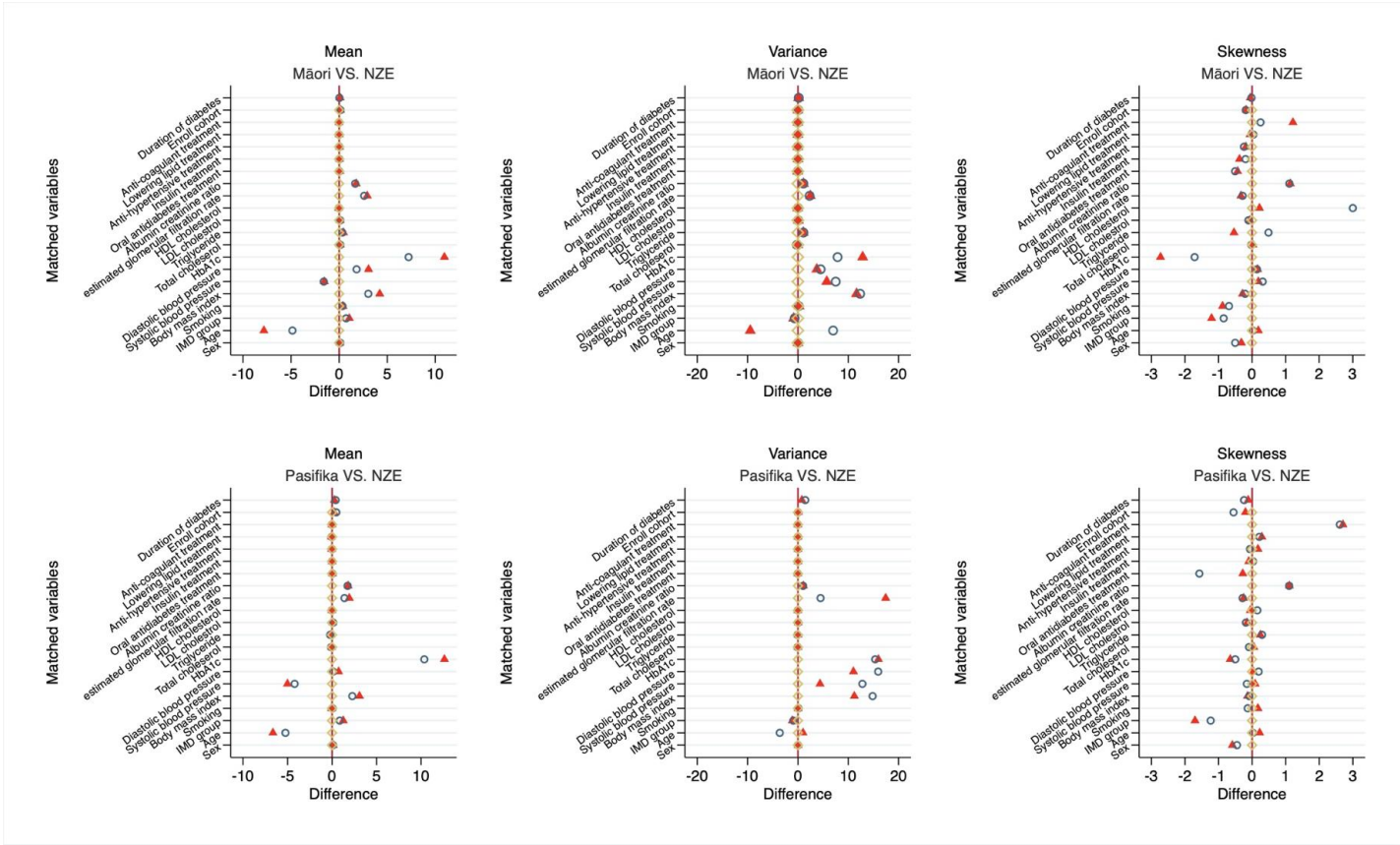


ONLINE SUPPLEMENTAL FILE**Supplemental Figure S1.** Workflow charts for matching process (NZ European vs. Māori)**Supplemental Figure S2.** Workflow charts for matching process (NZ European vs. Pasifika)

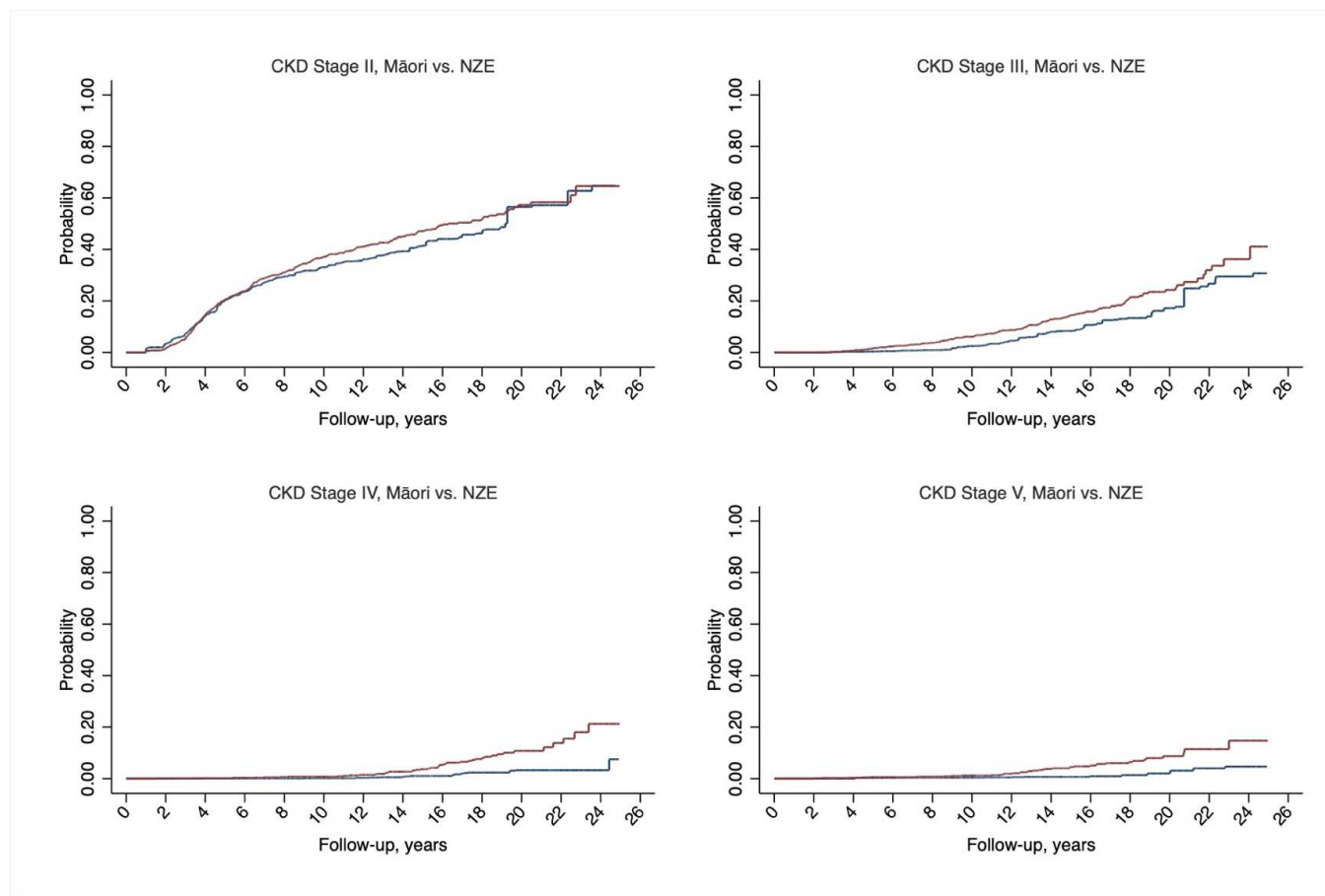


Supplemental Figure S3. Distribution of difference of means, variance and skewness on matched variables in the unmatched and matched cohorts.

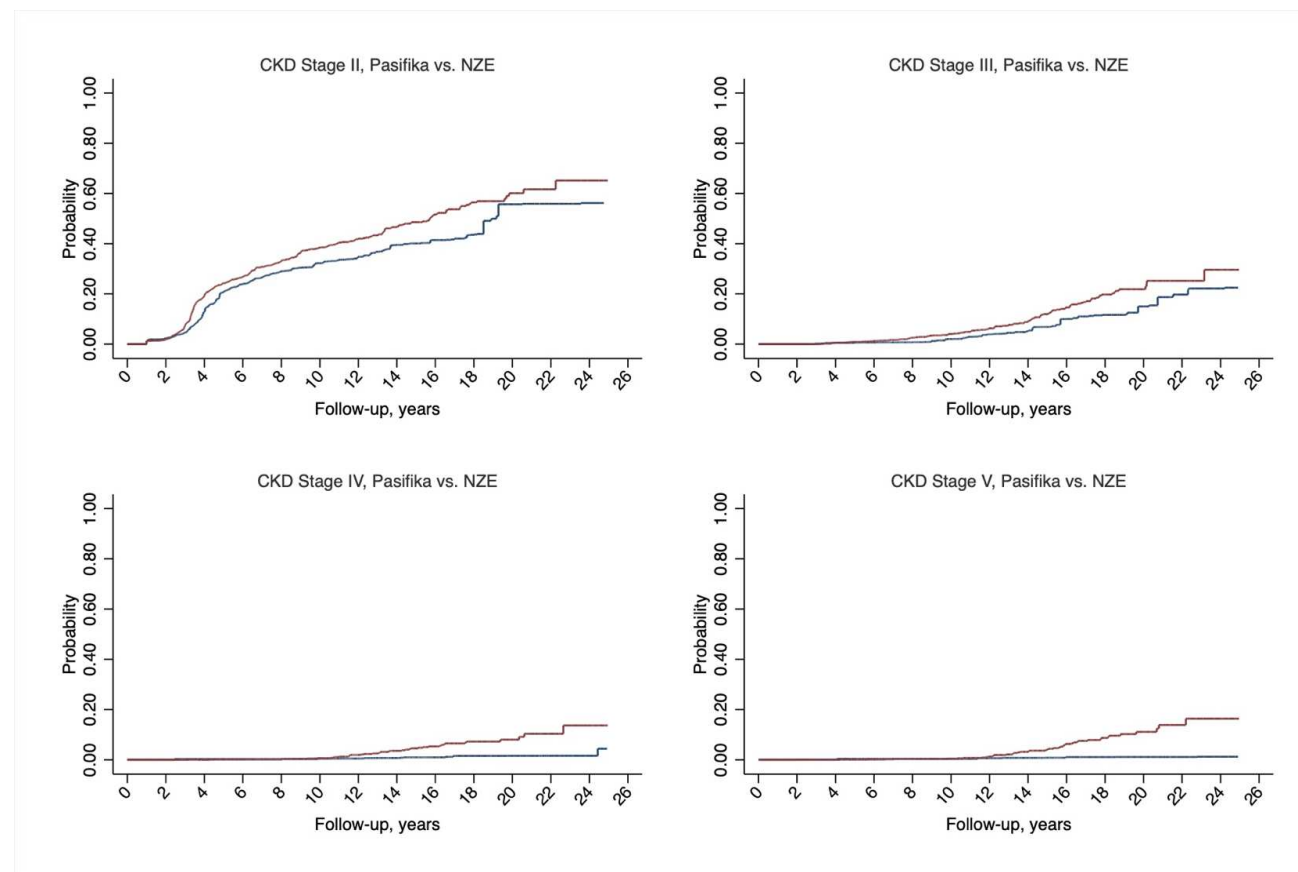
Triangles indicate measurements from unmatched cohorts; diamonds indicate measurements from coarsened exact matching; circles indicate measurements from entropy matching cohorts



Supplemental Figure S4. Cumulative risk of each stage of CKD (II-V) over 25 years in European, and Māori patients with type 2 diabetes. Red and blue line is for Māori and European patients with type 2 diabetes, respectively. Risks were estimated from the final model, model (xi) for each outcome.



Supplemental Figure S5. Cumulative risk of each stage of CKD (II-V) over 25 years in European, and Pasifika patients with type 2 diabetes. Red and blue line is for Māori and European patients with type 2 diabetes, respectively. Risks were estimated from the final model, model (xi) for each outcome.



Supplemental Table S1. Characteristics in the matched cohorts

	Comparison 1: Māori vs. NZ European					
	Cohorts after coarsened exact matching			Cohorts after entropy matching		
	NZ European N=2028	Māori N=2215	P-value	NZ European N=2028	Māori N=2215	P-value
Age, years	52.4 (12.2)	46.5 (11.9)	<0.001	46.3	46.3	1.000
Male Gender, n (%)	1431 (64.6)	1184 (58.4)	<0.001	55.9 (0.03)	55.9 (0.01)	1.000
Enrol cohort, n (%)						
1994-1998	445 (20.1)	332 (16.4)	<0.001	8.4 (0.01)	8.3 (0.01)	0.8560
1999-2003	633 (28.6)	534 (26.3)		23.1 (0.02)	23.2 (0.01)	
2004-2008	438 (19.8)	370 (18.2)		21.8 (0.02)	21.8 (0.01)	
2009-2013	537 (24.2)	605 (29.8)		37.8 (0.02)	37.8 (0.01)	
2014-2018	162 (7.3)	187 (9.2)		8.9 (0.02)	8.9 (0.01)	
Duration of having diabetes, years	4.6 (1.9)	4.6 (1.9)	0.328	4.6	4.6	1.000
IMD group (NZDep13 scale)						
IMD-1 (1 or 2)	272 (13.3)	76 (3.9)	<0.001	3.8 (0.004)	3.9 (0.01)	0.4261
IMD-2 (3 or 4)	289 (14.1)	137 (7.0)		7.8 (0.01)	7.2 (0.01)	
IMD-3 (5 or 6)	245 (11.9)	188 (9.7)		8.5 (0.01)	9.5 (0.01)	
IMD-4 (7 or 8)	651 (31.7)	452 (23.2)		24.1 (0.02)	23.5 (0.01)	
IMD-5 (9 or 10)	596 (29.0)	1096 (56.2)		55.7 (0.02)	55.9 (0.01)	
Smoking status, n (%)						
Never smoking	1326 (59.9)	929 (45.8)	<0.001	36.2 (0.02)	36.2 (0.01)	0.9988
Ex-smoker	507 (22.9)	436 (21.5)		27.2 (0.02)	27.2 (0.01)	
Current Smoker	382 (17.3)	663 (32.7)		36.6 (0.03)	36.6 (0.01)	
Body mass index, kg/m ²	34.2 (6.9)	37.0 (7.8)	<0.001	37.3	37.3	1.000
Systolic blood pressure, mmHg	137.6 (16.2)	136.0 (18.2)	<0.001	134.8	134.8	1.000
Diastolic blood pressure, mmHg	83.4 (9.0)	85.4 (11.3)	<0.001	84.9	84.9	1.000
HbA1c, mmol/mol	59.9 (18.9)	67.6 (21.0)	<0.001	66.9	66.9	1.000
Total cholesterol, mmol/L	5.1 (1.2)	5.2 (1.2)	0.980	5.1	5.1	1.000
Triglyceride, mmol/L	2.5 (1.6)	2.8 (1.9)	<0.001	2.6	2.6	1.000
Low-density lipoprotein cholesterol, mmol/L	2.6 (1.0)	2.7 (1.0)	<0.001	2.7	2.7	1.000
High-density lipoprotein cholesterol, mmol/L	1.1 (0.4)	1.1 (0.3)	<0.001	1.1	1.1	1.000
estimated Glomerular filtration rate (eGFR), ml/min/1.73 m ²	105.0 (12.8)	107.4 (13.7)	<0.001	107.5	107.5	1.000
Albumin creatinine ratio, mg/mmol	1.2 (0.8)	2.2 (1.0)	<0.001	2.2	2.2	1.000
Antidiabetes treatment, n (%)						
Oral antidiabetes drug and insulin	401 (18.1)	460 (22.7)	<0.001	24.6 (0.02)	25.7 (0.01)	0.3859
Oral antidiabetes drug only	1323 (59.7)	1231 (60.7)		69.6 (0.02)	68.5 (0.01)	
Insulin only	43 (1.9)	31 (1.5)		1.9 (0.01)	1.0 (0.002)	
Antihypertensive treatment, n (%)	1476 (66.6)	1470 (72.5)	0.225	84.3 (0.02)	84.3 (0.01)	0.9999
Statin treatment, n (%)	1344 (60.7)	1293 (63.8)	0.183	79.6 (0.02)	79.6 (0.01)	1.0000
Antiplatelet or anticoagulant treatment, n (%)	42 (1.9)	34 (1.7)	0.036	2.6 (0.01)	2.6 (0.004)	0.9999
	Comparison 2: Pacific vs. European					
	NZ European N=2474	Pasifika N=3101	P-value	NZ European N=2474	Pasifika N=3101	P-value
Age, years	53.2 (12.6)	49.0 (12.4)	<0.001	47.0	47.0	1.000
Male Gender, n (%)	1476 (59.7)	1539 (49.6)	<0.001	52.8 (0.03)	52.8 (0.01)	1.000
Enrol cohort, n (%)						

1994-1998	536 (21.7)	486 (15.7)	<0.001	5.9 (0.01)	5.4 (0.01)	1.000
1999-2003	732 (29.6)	863 (27.8)		15.7 (0.02)	17.8 (0.01)	
2004-2008	480 (19.4)	409 (13.2)		20.0 (0.02)	16.9 (0.01)	
2009-2013	545 (22.1)	963 (31.1)		42.6 (0.03)	44.7 (0.01)	
2013-2018	178 (7.2)	380 (12.3)		15.8 (0.03)	15.3 (0.01)	
Duration of having diabetes, years	4.7 (1.9)	4.9 (2.0)		4.8	4.8	1.000
IMD group (NZDep13 scale)						
IMD-1 (1 or 2)	329 (13.3)	90 (2.9)	<0.001	3.1 (0.004)	2.9 (0.004)	1.000
IMD-2 (3 or 4)	291 (11.8)	165 (5.3)		4.8 (0.01)	5.5 (0.01)	
IMD-3 (5 or 6)	249 (10.1)	171 (5.5)		5.4 (0.01)	4.3 (0.01)	
IMD-4 (7 or 8)	820 (33.1)	670 (21.6)		21.4 (0.02)	22.1 (0.01)	
IMD-5 (9 or 10)	785 (31.8)	2005 (64.7)		65.3 (0.02)	65.1 (0.01)	
Smoking status, n (%)						
Never smoking	1763 (71.4)	2259 (72.9)	<0.001	64.0 (0.03)	64.0 (0.01)	1.000
Ex-smoker	417 (16.9)	384 (12.4)		17.7 (0.02)	17.7 (0.01)	
Current Smoker	291 (11.8)	458 (14.8)		18.3 (0.02)	18.3 (0.01)	
Body mass index, kg/m ²	33.6 (6.9)	35.6 (7.8)		36.0	36.0	1.000
Systolic blood pressure, mmHg	137.1 (16.4)	133.1 (16.7)	<0.001	131.9	131.9	1.000
Diastolic blood pressure, mmHg	82.8 (9.0)	82.9 (10.0)	<0.001	82.5	82.5	1.000
HbA1c, mmol/mol	57.7 (16.6)	67.0 (19.9)	<0.001	66.9	66.9	1.000
Total cholesterol, mmol/L	5.1 (1.1)	5.0 (1.1)	0.003	4.9	4.9	1.000
Triglyceride, mmol/L	2.2 (1.1)	2.0 (1.1)	0.003	2.0	2.0	1.000
Low-density lipoprotein cholesterol, mmol/L	2.6 (0.9)	2.7 (0.9)	0.002	2.7	2.7	1.000
High-density lipoprotein cholesterol, mmol/L	1.1 (0.3)	1.1 (0.3)	0.003	1.1	1.1	1.000
estimated glomerular filtration rate (eGFR), ml/min/1.73 m ²	103.9 (12.0)	105.1 (12.1)	0.004	105.3	105.3	1.000
Albumin creatinine ratio, mg/mmol	1.2 (0.8)	2.2 (1.0)	<0.001	2.2 (1.0)	2.2 (1.0)	1.000
Antidiabetes treatment, n (%)						
Oral antidiabetes drug and insulin	419 (17.0)	502 (16.2)	<0.001	20.6 (0.03)	21.5 (0.01)	1.000
Oral antidiabetes drug only	1477 (59.8)	1838 (59.3)		75.2 (0.03)	74.4 (0.01)	
Insulin only	52 (2.1)	52 (1.7)		1.2 (0.01)	1.3 (0.01)	
Antihypertensive treatment, n (%)	1559 (63.1)	1875 (60.5)	0.001	80.8 (0.01)	80.8 (0.01)	1.000
Statin treatment, n (%)	1417 (57.4)	1588 (51.2)	0.003	75.4 (0.01)	75.4 (0.01)	1.000
Antiplatelet or anticoagulant treatment, n (%)	48 (1.9)	35 (1.1)	0.001	1.4 (0.01)	1.4 (0.01)	1.000

Supplemental Table S2. Adjusted hazard ratios for risks of any and each of II-V stages of chronic kidney diseases

Model (i) weighted for age and sex; model (ii) weighted for all adjusted variables in model (i) plus IMD group; model (iii) weighted for all adjusted variables in model (ii) plus smoking status; model (iv) weighted for all adjusted variables in model (iii) plus body measurements (body mass index, systolic and diastolic blood pressure); model (v) weighted for all adjusted variables in model (iv) plus baseline HbA1c; model (vi) weighted for all adjusted variables in model (v) plus baseline lipid profile (total cholesterol, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, and triglyceride); model (vii) weighted for all adjusted variables in model (vi) plus baseline estimated glomerular filtration rate and albumin creatinine ratio; model (viii) weighted for all adjusted variables in model (vii) plus antidiabetes treatments; model (ix) weighted for all adjusted variables in model (viii) plus antihypertensive, lowering lipid and anticoagulant treatment; model (x) weighted for all adjusted variables in model (ix) plus entry cohorts; model (xi) weighted for all adjusted variables in model (x) plus duration of having diabetes at entry time.

MODELS	outcome	Comparative group	HR (95%CI)
Model I	AnyCKD	Māori vs. NZE	1.12 (0.99 to 1.27)
Model II	AnyCKD	Māori vs. NZE	1.07 (0.93 to 1.22)
Model III	AnyCKD	Māori vs. NZE	1.09 (0.94 to 1.25)
Model IV	AnyCKD	Māori vs. NZE	1.15 (0.98 to 1.35)
Model V	AnyCKD	Māori vs. NZE	1.18 (0.99 to 1.41)
Model VI	AnyCKD	Māori vs. NZE	1.18 (0.98 to 1.40)
Model VII	AnyCKD	Māori vs. NZE	1.20 (1.00 to 1.44)
Model VIII	AnyCKD	Māori vs. NZE	1.25 (1.05 to 1.49)
Model IX	AnyCKD	Māori vs. NZE	1.20 (1.00 to 1.43)
Model X	AnyCKD	Māori vs. NZE	1.19 (0.99 to 1.42)
Model XI	AnyCKD	Māori vs. NZE	1.18 (0.99 to 1.41)
Model I	CKD2	Māori vs. NZE	1.04 (0.92 to 1.18)
Model II	CKD2	Māori vs. NZE	0.99 (0.86 to 1.14)
Model III	CKD2	Māori vs. NZE	1.01 (0.87 to 1.17)
Model IV	CKD2	Māori vs. NZE	1.06 (0.90 to 1.25)
Model V	CKD2	Māori vs. NZE	1.10 (0.92 to 1.31)
Model VI	CKD2	Māori vs. NZE	1.09 (0.91 to 1.30)
Model VII	CKD2	Māori vs. NZE	1.11 (0.93 to 1.33)
Model VIII	CKD2	Māori vs. NZE	1.16 (0.97 to 1.39)
Model IX	CKD2	Māori vs. NZE	1.11 (0.92 to 1.33)
Model X	CKD2	Māori vs. NZE	1.10 (0.92 to 1.32)
Model XI	CKD2	Māori vs. NZE	1.10 (0.91 to 1.32)
Model I	CKD3	Māori vs. NZE	2.16 (1.65 to 2.83)
Model II	CKD3	Māori vs. NZE	2.01 (1.49 to 2.70)
Model III	CKD3	Māori vs. NZE	1.83 (1.34 to 2.51)
Model IV	CKD3	Māori vs. NZE	2.02 (1.45 to 2.81)
Model V	CKD3	Māori vs. NZE	1.75 (1.24 to 2.47)
Model VI	CKD3	Māori vs. NZE	1.75 (1.24 to 2.47)
Model VII	CKD3	Māori vs. NZE	1.82 (1.28 to 2.57)
Model VIII	CKD3	Māori vs. NZE	1.83 (1.29 to 2.60)
Model IX	CKD3	Māori vs. NZE	1.80 (1.26 to 2.57)
Model X	CKD3	Māori vs. NZE	1.72 (1.20 to 2.45)

Model XI	CKD3	Māori vs. NZE	1.70 (1.19 to 2.43)
Model I	CKD4	Māori vs. NZE	2.80 (1.90 to 4.14)
Model II	CKD4	Māori vs. NZE	3.72 (2.04 to 6.79)
Model III	CKD4	Māori vs. NZE	3.27 (1.79 to 6.01)
Model IV	CKD4	Māori vs. NZE	4.05 (2.19 to 7.47)
Model V	CKD4	Māori vs. NZE	3.76 (2.07 to 6.84)
Model VI	CKD4	Māori vs. NZE	3.93 (2.15 to 7.19)
Model VII	CKD4	Māori vs. NZE	4.14 (2.26 to 7.61)
Model VIII	CKD4	Māori vs. NZE	4.02 (2.19 to 7.38)
Model IX	CKD4	Māori vs. NZE	3.87 (2.12 to 7.07)
Model X	CKD4	Māori vs. NZE	3.91 (2.15 to 7.14)
Model XI	CKD4	Māori vs. NZE	3.93 (2.16 to 7.14)
Model I	CKD5	Māori vs. NZE	4.12 (2.10 to 8.08)
Model II	CKD5	Māori vs. NZE	4.78 (2.24 to 10.21)
Model III	CKD5	Māori vs. NZE	4.19 (2.12 to 8.25)
Model IV	CKD5	Māori vs. NZE	4.42 (2.16 to 9.03)
Model V	CKD5	Māori vs. NZE	4.26 (2.07 to 8.76)
Model VI	CKD5	Māori vs. NZE	4.34 (2.12 to 8.89)
Model VII	CKD5	Māori vs. NZE	4.39 (2.15 to 8.98)
Model VIII	CKD5	Māori vs. NZE	4.14 (1.96 to 8.76)
Model IX	CKD5	Māori vs. NZE	3.88 (1.81 to 8.32)
Model X	CKD5	Māori vs. NZE	3.96 (1.87 to 8.41)
Model XI	CKD5	Māori vs. NZE	3.74 (1.74 to 8.05)
Model I	AnyCKD	Pasifika vs. NZE	1.11 (0.99 to 1.25)
Model II	AnyCKD	Pasifika vs. NZE	1.11 (0.97 to 1.26)
Model III	AnyCKD	Pasifika vs. NZE	1.09 (0.96 to 1.25)
Model IV	AnyCKD	Pasifika vs. NZE	1.16 (1.01 to 1.32)
Model V	AnyCKD	Pasifika vs. NZE	1.13 (0.97 to 1.32)
Model VI	AnyCKD	Pasifika vs. NZE	1.14 (0.97 to 1.33)
Model VII	AnyCKD	Pasifika vs. NZE	1.18 (1.01 to 1.39)
Model VIII	AnyCKD	Pasifika vs. NZE	1.19 (1.01 to 1.40)
Model IX	AnyCKD	Pasifika vs. NZE	1.24 (1.04 to 1.47)
Model X	AnyCKD	Pasifika vs. NZE	1.29 (1.07 to 1.54)
Model XI	AnyCKD	Pasifika vs. NZE	1.31 (1.09 to 1.57)
Model I	CKD2	Pasifika vs. NZE	1.03 (0.92 to 1.16)
Model II	CKD2	Pasifika vs. NZE	1.04 (0.91 to 1.18)
Model III	CKD2	Pasifika vs. NZE	1.03 (0.90 to 1.17)
Model IV	CKD2	Pasifika vs. NZE	1.08 (0.94 to 1.24)
Model V	CKD2	Pasifika vs. NZE	1.07 (0.92 to 1.25)
Model VI	CKD2	Pasifika vs. NZE	1.07 (0.91 to 1.26)
Model VII	CKD2	Pasifika vs. NZE	1.11 (0.95 to 1.31)
Model VIII	CKD2	Pasifika vs. NZE	1.13 (0.96 to 1.33)
Model IX	CKD2	Pasifika vs. NZE	1.17 (0.99 to 1.40)
Model X	CKD2	Pasifika vs. NZE	1.24 (1.03 to 1.49)
Model XI	CKD2	Pasifika vs. NZE	1.26 (1.05 to 1.52)

Model I	CKD3	Pasifika vs. NZE	1.78 (1.35 to 2.34)
Model II	CKD3	Pasifika vs. NZE	1.63 (1.19 to 2.22)
Model III	CKD3	Pasifika vs. NZE	1.61 (1.18 to 2.20)
Model IV	CKD3	Pasifika vs. NZE	1.76 (1.27 to 2.44)
Model V	CKD3	Pasifika vs. NZE	1.50 (1.05 to 2.14)
Model VI	CKD3	Pasifika vs. NZE	1.50 (1.03 to 2.18)
Model VII	CKD3	Pasifika vs. NZE	1.61 (1.11 to 2.32)
Model VIII	CKD3	Pasifika vs. NZE	1.63 (1.13 to 2.36)
Model IX	CKD3	Pasifika vs. NZE	1.61 (1.18 to 2.20)
Model X	CKD3	Pasifika vs. NZE	1.70 (1.13 to 2.57)
Model XI	CKD3	Pasifika vs. NZE	1.71 (1.14 to 2.57)
Model I	CKD4	Pasifika vs. NZE	3.68 (2.03 to 6.70)
Model II	CKD4	Pasifika vs. NZE	3.01 (1.46 to 6.21)
Model III	CKD4	Pasifika vs. NZE	2.87 (1.38 to 5.96)
Model IV	CKD4	Pasifika vs. NZE	3.66 (1.73 to 7.74)
Model V	CKD4	Pasifika vs. NZE	4.37 (2.12 to 9.02)
Model VI	CKD4	Pasifika vs. NZE	4.35 (2.05 to 9.22)
Model VII	CKD4	Pasifika vs. NZE	4.40 (2.00 to 9.68)
Model VIII	CKD4	Pasifika vs. NZE	4.26 (1.89 to 9.59)
Model IX	CKD4	Pasifika vs. NZE	4.83 (1.85 to 12.59)
Model X	CKD4	Pasifika vs. NZE	3.52 (1.23 to 10.10)
Model XI	CKD4	Pasifika vs. NZE	3.75 (1.40 to 10.05)
Model I	CKD5	Pasifika vs. NZE	5.54 (2.71 to 11.33)
Model II	CKD5	Pasifika vs. NZE	4.15 (1.69 to 10.19)
Model III	CKD5	Pasifika vs. NZE	3.98 (1.61 to 9.83)
Model IV	CKD5	Pasifika vs. NZE	4.40 (1.84 to 10.48)
Model V	CKD5	Pasifika vs. NZE	5.29 (1.95 to 14.33)
Model VI	CKD5	Pasifika vs. NZE	5.43 (2.09 to 14.12)
Model VII	CKD5	Pasifika vs. NZE	5.95 (2.40 to 14.76)
Model VIII	CKD5	Pasifika vs. NZE	5.75 (2.27 to 14.60)
Model IX	CKD5	Pasifika vs. NZE	6.03 (2.05 to 17.76)
Model X	CKD5	Pasifika vs. NZE	5.43 (1.71 to 17.25)
Model XI	CKD5	Pasifika vs. NZE	4.96 (1.56 to 15.75)