Supplementary Material

Variables	Total	Creatinine quartile(umol/L)				P-value
		Q1(<71.8)	Q2(71.8-<79.0)	Q3(79.0-<86.6)	Q4(86.6-106.0)	
No of subjects	108692	27021	27092	2738	27198	
Age，years	42.3 ± 12.8	42.5 ± 12.7	41.8 ± 12.5	41.9 ± 12.7	42.7 ± 13.5	< 0.001
BMI(kg/m2)	24.2 ± 3.2	24.1 ± 3.4	24.1 ± 3.3	24.2 ± 3.2	24.4 ± 3.1	< 0.001
SBP(mmHg)	122.7 ± 15.4	123.4 ± 15.6	122.4 ± 15.2	122.3 ± 15.2	122.7 ± 15.6	< 0.001
DBP(mmHg)	76.6 ± 10.6	76.9 ± 10.7	76.5 ± 10.5	76.4 ± 10.4	76.5 ± 10.7	< 0.001
FPG(mmol/L)	5.0 ± 0.6	5.0 ± 0.6	5.0 ± 0.6	4.9 ± 0.6	5.0 ± 0.6	< 0.001
TC(mmol/L)	4.7 ± 0.9	4.7 ± 0.9	4.7 ± 0.9	4.7 ± 0.9	4.8 ± 0.9	< 0.001
TG(mmol/L)	1.6 ± 1.2	1.6 ± 1.4	1.6 ± 1.1	1.6 ± 1.1	1.6 ± 1.1	< 0.001
HDL-C(mmol/L)	2.8 ± 0.7	2.8 ± 0.7	2.8 ± 0.7	2.8 ± 0.7	2.8 ± 0.7	< 0.001
LDL-C(mmol/L)	1.3 ± 0.3	1.3 ± 0.3	1.3 ± 0.3	1.3 ± 0.3	1.3 ± 0.3	0.011
ALT(IU/L)	23.0 (16.5, 34.2)	23.7 (16.9, 35.5)	23.1 (16.5, 34.8)	23.0 (16.3, 34.0)	22.7 (16.3, 33.1)	< 0.001
AST(IU/L)	23.5 (20.0, 28.7)	23.8 (20.0, 29.0)	23.7 (20.0, 28.8)	23.3 (20.0, 28.0)	23.3 (20.0, 28.4)	< 0.001
Bun(mmol/L)	4.9 ± 1.2	4.7 ± 1.1	4.8 ± 1.1	5.0 ± 1.1	5.2 ± 1.2	< 0.001
Family history of diabetes	1554 (1.4)	346 (1.3)	406 (1.5)	384 (1.4)	418 (1.5)	0.056
Drinking status (%)						< 0.001
Not recorded	71772 (66.0)	17827 (66)	17565 (64.8)	17913 (65.4)	18467 (67.9)	
Current	11190 (10.3)	3135 (11.6)	2928 (10.8)	2737 (10)	2390 (8.8)	
Former	2422 (2.2)	624 (2.3)	642 (2.4)	580 (2.1)	576 (2.1)	
Non	23308 (21.4)	5435 (20.1)	5957 (22)	6151 (22.5)	5765 (21.2)	
Smoking status (%)						< 0.001
Not recorded	71772 (66.0)	17827 (66)	17565 (64.8)	17913 (65.4)	18467 (67.9)	
Current	1241 (1.1)	387 (1.4)	305 (1.1)	317 (1.2)	232 (0.9)	
Former	8018 (7.4)	1892 (7)	2033 (7.5)	2077 (7.6)	2016 (7.4)	
Non	27661 (25.4)	6915 (25.6)	7189 (26.5)	7074 (25.8)	6483 (23.8)	

Abbreviations: BMI,body mass index;SBP,systolic blood pressure;DBP,diastolic blood pressure;FPG,fasting plasma glucose;TC,total cholesterol;TG,triglyceride;LDL-C,low-density lipid cholesterol;HDL-C, high-density lipoprotein cholesterol;BUN,blood urea nitrogen;ALT,alanine aminotransferase;AST,aspartate aminotransferase.

Table S2 Baseline characteristics of female patients

Variables	Total	Creatinine quartile(umol/L)				P-value
		Q1(<51.6)	Q2(51.6 -<57.0)	Q3(57.0-<63.0)	Q4(63.0-97.0)	
No of subjects	90047	22360	21761	22668	23258	
Age，years	42.0 ± 12.4	40.2 ± 10.9	41.0 ± 11.6	42.0 ± 12.2	44.7 ± 14.1	< 0.001
BMI(kg/m2)	22.1 ± 3.1	22.0 ± 3.1	22.0 ± 3.1	22.0 ± 3.0	22.3 ± 3.1	< 0.001
SBP(mmHg)	114.4 ± 16.3	114.1 ± 15.8	113.6 ± 15.7	114.0 ± 16.1	116.0 ± 17.4	< 0.001
DBP(mmHg)	71.2 ± 10.3	71.0 ± 10.2	70.9 ± 10.1	71.1 ± 10.2	71.6 ± 10.5	< 0.001
FPG(mmol/L)	4.8 ± 0.6	4.9 ± 0.6	4.8 ± 0.6	4.8 ± 0.6	4.9 ± 0.6	< 0.001
TC(mmol/L)	4.7 ± 0.9	4.6 ± 0.9	4.7 ± 0.9	4.7 ± 0.9	4.8 ± 0.9	< 0.001
TG(mmol/L)	1.1 ± 0.7	1.0 ± 0.8	1.0 ± 0.7	1.0 ± 0.7	1.1 ± 0.7	< 0.001
HDL-C(mmol/L)	1.5 ± 0.3	1.5 ± 0.3	1.5 ± 0.3	1.5 ± 0.3	1.5 ± 0.3	< 0.001
LDL-C(mmol/L)	2.7 ± 0.7	2.7 ± 0.7	2.7 ± 0.7	2.7 ± 0.7	2.8 ± 0.7	< 0.001
ALT(IU/L)	13.9 (10.9, 19.0)	14.0 (10.9, 19.4)	13.6 (10.7, 18.5)	13.7 (10.8, 18.6)	14.0 (11.0, 18.8)	< 0.001
AST(IU/L)	20.0 (17.1, 24.0)	20.0 (17.0, 23.6)	20.0 (17.0, 23.6)	20.0 (17.0, 23.7)	20.4 (17.5, 24.3)	< 0.001
Bun(mmol/L)	4.3 ± 1.1	4.1 ± 1.0	4.2 ± 1.1	4.4 ± 1.1	4.6 ± 1.1	< 0.001
Family history of diabetes	2610 (2.9)	723 (3.2)	640 (2.9)	627 (2.8)	620 (2.7)	0.002
Drinking status (%)						< 0.001
Not recorded	69909 (77.6)	16944 (75.8)	16621 (76.4)	17670 (78)	18674 (80.3)	
Current	26 (0.0)	8 (0)	8 (0)	5 (0)	5 (0)	
Former	524 (0.6)	148 (0.7)	128 (0.6)	127 (0.6)	121 (0.5)	
Non	19588 (21.8)	5260 (23.5)	5004 (23)	4866 (21.5)	4458 (19.2)	
Smoking status (%)						< 0.001
Not recorded	69909 (77.6)	16944 (75.8)	16621 (76.4)	17670 (78)	18674 (80.3)	
Current	28 (0.0)	7 (0)	4 (0)	9 (0)	8 (0)	
Former	22 (0.0)	7 (0)	8 (0)	4 (0)	3 (0)	
Non	20088 (22.3)	5402 (24.2)	5128 (23.6)	4985 (22)	4573 (19.7)	

Abbreviations: BMI,body mass index;SBP,systolic blood pressure;DBP,diastolic blood pressure;FPG,fasting plasma

glucose;TC,total cholesterol;TG,triglyceride;LDL-C,low-density lipid cholesterol;HDL-C, high-density lipoprotein

cholesterol;BUN,blood urea nitrogen;ALT,alanine aminotransferase;AST,aspartate aminotransferase.

Table S3 Association between creatinine and type 2 diabetes

Creatinine	N	n.event(%)	Crude Model		Adjusted Model I		Adjusted Model II	
			HR (95%CI）	P value	HR (95%CI）	P value	HR (95%CI）	P value
Female Creatinine Quartiles								
Q1(<51.6)	22360	312 (1.4)	1.36 (1.15~1.61)		1.63 (1.38~1.93)	<0.001	1.33 (1.12~1.58)	0.001
Q2(51.6-<57)	21761	227 (1)	1 .00(0.83~1.2)	0.989	1.13 (0.94~1.35)	0.20	1.04 (0.86~1.25)	0.688
Q3(57-<63)	22668	241 (1.1)	Ref		Ref		Ref	
Q4(63-97)	23258	322 (1.4)	1.40 (1.19~1.66)	<0.001	0.97 (0.82~1.15)	0.749	1.09 (0.92~1.29)	0.306
Trend.test	90047	1102 (1.2)		<0.001		<0.001		<0.001
Female Categories								
Q1(<51.6)	22360	312 (1.4)	1.20(1.05~1.37)	0.007	1.59 (1.39~1.82)	<0.001	1.27 (1.11~1.46)	0.001

	N	Cases (%)	Crude HR (95%CI)	P	Model I HR (95%CI)	P	Model II HR (95%CI)	P
Q2-Q4(51.6-97)	67687	790 (1.2)	Ref		Ref		Ref	
Male Creatinine Quartiles								
Q1(<71.8)	27021	918 (3.4)	1.48 (1.34~1.64)	<0.001	1.47 (1.32~1.63)	<0.001	1.21(1.09~1.34)	<0.001
Q2(71.8-<79)	27092	713 (2.6)	1.15 (1.03~1.28)	0.012	1.17 (1.05~1.31)	0.004	1.12 (1~1.25)	0.041
Q3(79-<86.6)	27381	596 (2.2)	Ref		Ref		Ref	
Q4(86.6-106)	27198	601 (2.2)	1.12 (1.00~1.26)	0.043	0.99 (0.88~1.11)	0.846	1.08(0.96~1.21)	0.193
Trend.test	108692	2828 (2.6)		<0.001		<0.001		0.005
Male Categories								
Q1(<71.8)	27021	918 (3.4)	1.36 (1.26~1.47)	<0.001	1.39 (1.28~1.50)	<0.001	1.13 (1.04~1.22)	0.003
Q2-Q4(71.8-106)	81671	1910 (2.3)	Ref		Ref		Ref	

Notes: Participants were divided by sex-specific quartiles (Q1-Q4) of serum creatinine level at baseline:<71.8, 71.8-<79.0,79.0-<86.6 and 86.6-106.0 umol/L for men;<51.6, 51.6-<57.0,57.0-<63.0 and 63.0-97.0 umol/L for women.

Model I: Adjusted for age body mass index, systolic blood pressure,and diastolic blood pressure.

Model II: adjusted for all the variables in the model I, plus fasting plasma glucose,total cholesterol,triglyceride,blood urea nitrogen,alanine aminotransferase,drinking status,smoking status and family history of diabetes.

Subgroup	Q1 Events(%)	Q2-4 Events(%)	adjusted model HR(95%CI)		P for interaction
Overall					
Crude	1910/81671 (2.3)	918/27021 (3.4)	1.36 (1.26~1.47)		
Adjusted			1.13 (1.04~1.22)		
Age,yr					0.004
<45	465/52746 (0.9)	257/16759(1.5)	1.22 (1.05~1.43)		
≥45	1445 /28907(5.0)	661/10262 (6.4)	1.05 (0.96~1.16)		
BMI((kg/m2))					0.366
<21	49/12487 (0.4)	35/4859(0.7)	1.70(1.08~2.67)		
21-<25	532/36215 (1.5)	257/11701 (2.2)	1.22 (1.04~1.41)		
≥25	1329/32969 (4.0)	626 /10461(6.0)	1.11 (1.01~1.22)		
TG(mmol/L)					0.738
<1.7	828/54708 (1.5)	418/18237 (2.3)	1.14 (1.01~1.29)		
≥1.7	1057/25566 (4.1)	481/8344 (5.8)	1.10(0.99~1.23)		
TC5.2(mmol/L)					0.643
<5.2	1170/58077 (2.0)	555/19403 (2.9)	1.16 (1.04~1.28)		
≥5.2	715/22198 (3.2)	344/7178 (4.8)	1.07 (0.94~1.22)		
FPG(mmol/L)					<0.001
<6.1	1002 /78342(1.3)	477/25617 (1.9)	1.38 (1.24~1.55)		
≥6.1	908/3329 (27.3)	441/1404 (31.4)	1.01 (0.90~1.13)		
SBP(mmhg)					0.476
<130	943/57248 (1.6)	449 /18293(2.5)	1.13 (1.01~1.27)		
≥130	967/24415 (4.0)	469/8726 (5.4)	1.11 (0.99~1.24)		
DBP(mmhg)					0.624
<80	875/52476 (1.7)	413/16804 (2.5)	1.07 (0.95~1.21)		
≥80	1035/29187 (3.5)	505/10215 (4.9)	1.15 (1.03~1.29)		
Smoking status					0.958
Not recorded	1324 /53945(2.5)	640/17827 (3.6)	1.12 (1.02~1.23)		
Non	249/8055(3.1)	138 /3135(4.4)	1.27 (1.03~1.57)		
Former	54/1798 (3.0)	20/624 (3.2)	1.04 (0.61~1.8)		
Current	283 /17873(1.6)	120/5435 (2.2)	1.13 (0.90~1.41)		
Drinking status					0.578
Not recorded	1324/53945 (2.5)	640 /17827(3.6)	1.12 (1.02~1.23)		
Non	26/854 (3.0)	20 /387(5.2)	1.47 (0.78~2.78)		
Former	119/6126 (1.9)	54 /1892(2.9)	1.13 (0.80~1.57)		
Current	441 /20746(2.1)	204 /6915(3.0)	1.16 (0.98~1.38)		
Family histroy					0.071
No	1841/80463 (2.3)	891/26675 (3.3)	1.14 (1.05~1.24)		
Yes	69/1208 (5.7)	27/346 (7.8)	0.89 (0.54~1.48)		

Hazard Ratio,95%CI

0.50   1.0   2.0

Figure S1 Stratified analysis of the impact of creatinine on new-onset Type 2 Diabetes by

other potential effect modifiers for male**.** Adjusted for age, body mass index,systolic blood pressure,diastolic blood pressure,fasting plasma glucose,total cholesterol,triglyceride,blood urea nitrogen,alanine aminotransferase,d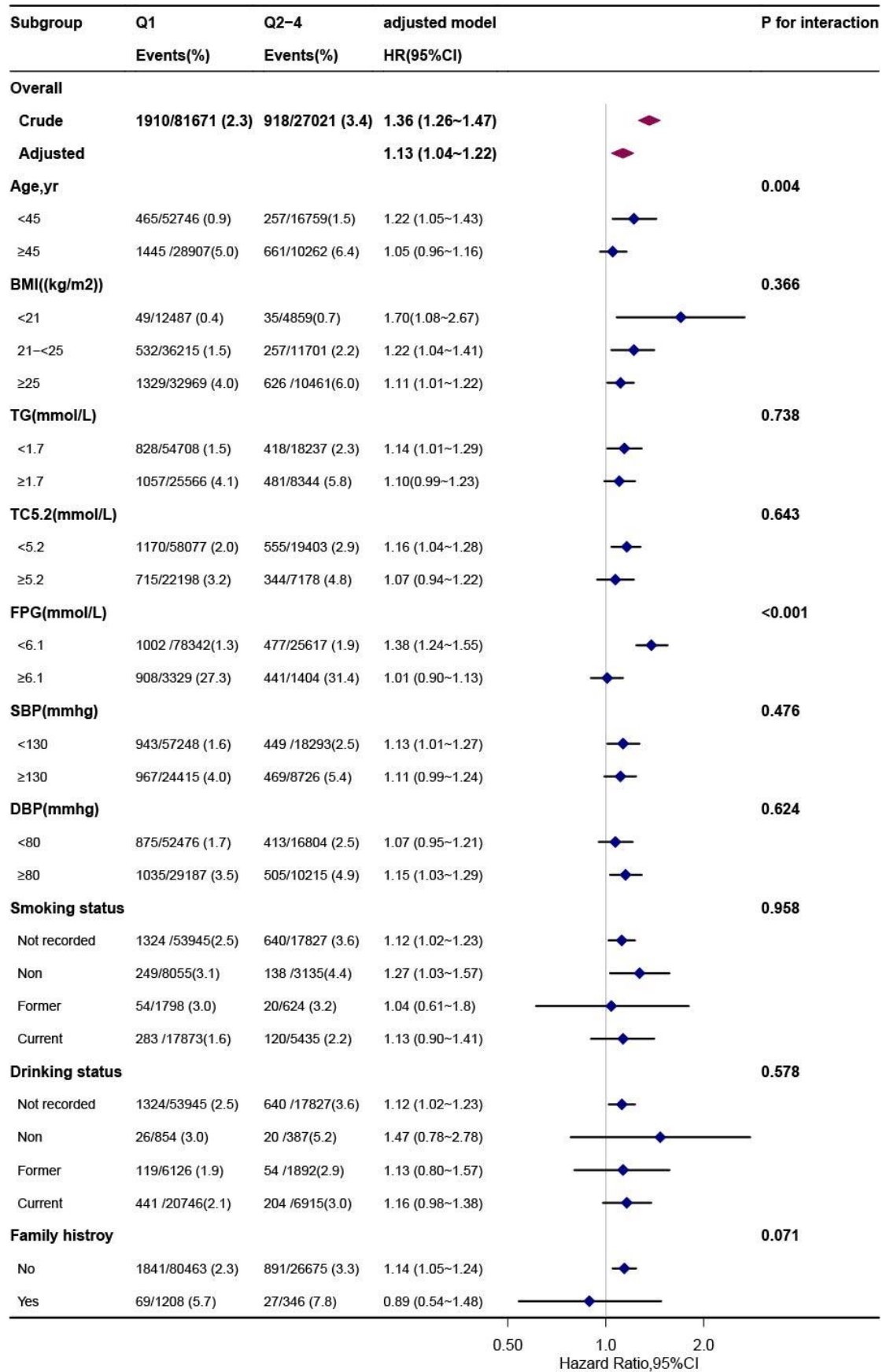rinking status,smoking status and family history of diabetes, if not be stratified. Boxes denote odds ratios (ORs), lines represent 95% CIs.

Abbreviations:BMI,body mass index;SBP,systolic blood pressure;DBP,diastolic blood pressure;FPG,fasting plasma glucose;TC,total cholesterol;TG,triglyceride.

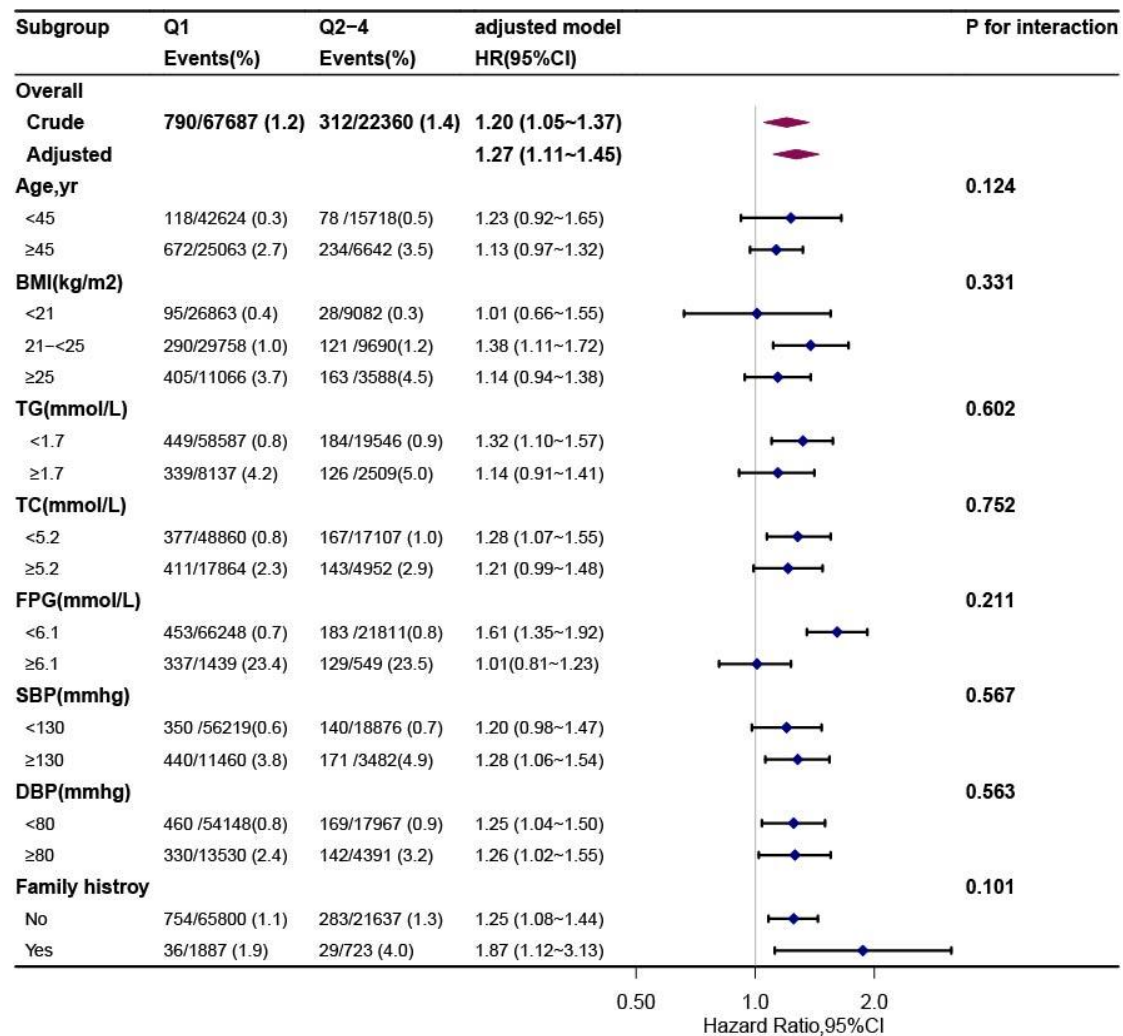| Subgroup	Q1 Events(%)	Q2-4 Events(%)	adjusted model HR(95%CI)		P for interaction
Overall					
Crude	790/67687 (1.2)	312/22360 (1.4)	1.20 (1.05~1.37)		
Adjusted			1.27 (1.11~1.45)		
Age,yr					0.124
<45	118/42624 (0.3)	78 /15718(0.5)	1.23 (0.92~1.65)		
≥45	672/25063 (2.7)	234/6642 (3.5)	1.13 (0.97~1.32)		
BMI(kg/m2)					0.331
<21	95/26863 (0.4)	28/9082 (0.3)	1.01 (0.66~1.55)		
21-<25	290/29758 (1.0)	121 /9690(1.2)	1.38 (1.11~1.72)		
≥25	405/11066 (3.7)	163 /3588(4.5)	1.14 (0.94~1.38)		
TG(mmol/L)					0.602
<1.7	449/58587 (0.8)	184/19546 (0.9)	1.32 (1.10~1.57)		
≥1.7	339/8137 (4.2)	126 /2509(5.0)	1.14 (0.91~1.41)		
TC(mmol/L)					0.752
<5.2	377/48860 (0.8)	167/17107 (1.0)	1.28 (1.07~1.55)		
≥5.2	411/17864 (2.3)	143/4952 (2.9)	1.21 (0.99~1.48)		
FPG(mmol/L)					0.211
<6.1	453/66248 (0.7)	183 /21811(0.8)	1.61 (1.35~1.92)		
≥6.1	337/1439 (23.4)	129/549 (23.5)	1.01(0.81~1.23)		
SBP(mmhg)					0.567
<130	350 /56219(0.6)	140/18876 (0.7)	1.20 (0.98~1.47)		
≥130	440/11460 (3.8)	171 /3482(4.9)	1.28 (1.06~1.54)		
DBP(mmhg)					0.563
<80	460 /54148(0.8)	169/17967 (0.9)	1.25 (1.04~1.50)		
≥80	330/13530 (2.4)	142/4391 (3.2)	1.26 (1.02~1.55)		
Family histroy					0.101
No	754/65800 (1.1)	283/21637 (1.3)	1.25 (1.08~1.44)		
Yes	36/1887 (1.9)	29/723 (4.0)	1.87 (1.12~3.13)		

Hazard Ratio,95%CI

Figure S2 Stratified analysis of the impact of creatinine on new-onset Type 2 Diabetes by other potential effect modifiers for female. Adjusted for age, body mass index,systolic blood pressure,diastolic blood pressure,fasting plasma glucose,total cholesterol,triglyceride,blood urea nitrogen,alanine aminotransferase,drinking status,smoking status and family history of diabetes, if not be stratified. Boxes denote odds ratios (ORs), lines represent 95% CIs.

Abbreviations:BMI,body mass index;SBP,systolic blood pressure;DBP,diastolic blood pressure;FPG,fasting plasma glucose;TC,total cholesterol;TG,triglyceride.