Supplemental Materials

Supplemental Table 1. Odds ratios and 95% confidence intervals of progressive loss of kidney function associated with various combined age-BMI categories and with different covariates in a multivariable adjusted logistic regression model

Age (yrs old) & BMI (kg/m²)	Odds Ratio	95% CI		P values
<40 & <20	Referent			
<40 & 20-<25	1.087265	0.954403	1.238623	0.208
<40 & 25-<30	1.00643	0.885336	1.144086	0.922
<40 & 30-<35	0.858884	0.754032	0.978317	0.022
<40 & 35-<40	0.782983	0.682471	0.898297	<0.001
<40 & ≥40	0.755051	0.648815	0.878682	<0.001
40-50 & <20	1.218564	1.048719	1.415916	0.01
40-50 & 20-<25	1.121134	0.985403	1.27556	0.082
40-50 & 25-<30	1.077092	0.948272	1.223411	0.253
40-50 & 30-<35	1.020499	0.897673	1.160132	0.756
40-50 & 35-<40	1.080206	0.947207	1.231879	0.25
40-50 & ≥40	1.142463	0.997801	1.308099	0.054
50-60 & <20	1.682153	1.474059	1.919624	<0.001
50-60 & 20-<25	1.535641	1.352906	1.743059	<0.001
50-60 & 25-<30	1.375437	1.21228	1.560553	<0.001
50-60 & 30-<35	1.406703	1.239412	1.596575	<0.001
50-60 & 35-<40	1.554146	1.367805	1.765874	<0.001
50-60 & ≥40	1.850647	1.626941	2.105112	<0.001
60-70 & <20	2.355124	2.059743	2.692865	<0.001
60-70 & 20-<25	2.15025	1.893115	2.442311	<0.001
60-70 & 25-<30	1.894208	1.668817	2.150041	<0.001
60-70 & 30-<35	1.9539	1.720638	2.218784	<0.001
60-70 & 35-<40	2.212029	1.944771	2.516016	<0.001
60-70 & ≥40	2.597628	2.277994	2.962111	<0.001
70-80 & <20	3.657764	3.202849	4.177293	<0.001
70-80 & 20-<25	3.241336	2.85424	3.68093	<0.001
70-80 & 25-<30	3.054844	2.691039	3.467832	<0.001
70-80 & 30-<35	3.183594	2.802114	3.61701	<0.001
70-80 & 35-<40	3.588764	3.147799	4.091503	<0.001
70-80 & ≥40	4.203539	3.653364	4.836566	<0.001
≥80 & <20	5.633046	4.920996	6.448127	<0.001
≥80 & 20-<25	5.19336	4.570505	5.901095	<0.001
≥80 & 25-<30	5.00883	4.408148	5.691365	<0.001
≥80 & 30-<35	5.202756	4.562696	5.932603	<0.001
≥80 & 35-<40	5.908694	5.084299	6.86676	<0.001
≥80 & ≥40	7.164258	5.762391	8.907171	<0.001
Index eGFR	1.026297	1.025948	1.026646	<0.001
Race (Black)	1.080415	1.067912	1.093064	<0.001
Gender (male)	0.956618	0.936059	0.977628	<0.001
Marital status (married)	0.924881	0.91644	0.933399	<0.001
income	0.949297	0.944961	0.953652	<0.001

CCI	1.311246	1.305787	1.316727	<0.001
Cerebrovascular disease	0.957896	0.942572	0.97347	<0.001
CHF	1.495662	1.470595	1.521156	<0.001
Peripheral artery disease	1.063942	1.046711	1.081457	<0.001
Malignancies	0.660677	0.649531	0.672014	<0.001
Liver disease	1.27642	1.238446	1.315559	<0.001
Rheumatoid disease	0.818325	0.791184	0.846397	<0.001
Lung disease	0.832118	0.822624	0.841722	<0.001
AIDS	0.282392	0.268031	0.297523	<0.001
Depression	0.981881	0.967186	0.9968	0.017
Cardiovascular Disease	1.097745	1.083816	1.111853	<0.001
Statin use	0.690171	0.683649	0.696755	<0.001
ACEI use	1.279338	1.265096	1.29374	<0.001
Anti-Hypertensive use	0.952073	0.937686	0.966682	<0.001

BMI, body mass index; eGFR, estimated glomerular filtration rate, CCI, Charlson comorbidity index; CHF, congestive heart failure; AIDS, acquired immune deficiency syndrome; ACEI, angiotensin converting enzyme inhibitor

Supplemental Table 2. All-cause mortality hazard ratios and 95% confidence intervals associated with various combined age-BMI categories and with different covariates in a multivariable adjusted Cox model

Age (yrs old) & BMI (kg/m²)	Hazard Ratio	95% CI		P values
<40 & <20	Referent			
<40 & 20-<25	0.4956453	0.4259583	0.5767332	<0.001
<40 & 25-<30	0.3943221	0.3402153	0.457034	<0.001
<40 & 30-<35	0.3843465	0.3304757	0.4469988	<0.001
<40 & 35-<40	0.3595268	0.3042643	0.4248264	<0.001
<40 & ≥40	0.5181718	0.4325295	0.6207714	<0.001
40-50 & <20	4.092032	3.531785	4.741152	<0.001
40-50 & 20-<25	1.919526	1.665673	2.212066	<0.001
40-50 & 25-<30	1.30622	1.133937	1.504678	<0.001
40-50 & 30-<35	1.099776	0.953807	1.268084	0.191
40-50 & 35-<40	1.163612	1.006313	1.345498	0.041
40-50 & ≥40	1.459822	1.25959	1.691885	<0.001
50-60 & <20	7.101011	6.166257	8.177466	<0.001
50-60 & 20-<25	3.719569	3.232743	4.279709	<0.001
50-60 & 25-<30	2.309523	2.007274	2.657284	<0.001
50-60 & 30-<35	1.975118	1.71622	2.273073	<0.001
50-60 & 35-<40	2.015388	1.750029	2.320984	<0.001
50-60 & ≥40	2.43878	2.116497	2.810137	<0.001
60-70 & <20	11.26867	9.784628	12.9778	<0.001
60-70 & 20-<25	5.958667	5.17836	6.856555	<0.001
60-70 & 25-<30	3.628565	3.15354	4.175143	<0.001
60-70 & 30-<35	3.21017	2.789278	3.694573	<0.001
60-70 & 35-<40	3.416208	2.966205	3.934481	<0.001
60-70 & ≥40	4.108308	3.563779	4.736038	<0.001
70-80 & <20	17.18558	14.92566	19.78768	<0.001
70-80 & 20-<25	9.965829	8.661464	11.46662	<0.001
70-80 & 25-<30	7.058207	6.134498	8.121005	<0.001
70-80 & 30-<35	6.390967	5.553113	7.355237	<0.001
70-80 & 35-<40	6.761269	5.868792	7.789467	<0.001
70-80 & ≥40	8.079319	6.994789	9.332003	<0.001
≥80 & <20	26.33582	22.86535	30.33303	<0.001
≥80 & 20-<25	17.20987	14.95611	19.80325	<0.001
≥80 & 25-<30	13.68158	11.8893	15.74405	<0.001
≥80 & 30-<35	12.74138	11.06391	14.67319	<0.001

≥80 & 35-<40	13.29938	11.49717	15.38409	<0.001
≥80 & ≥40	15.33443	13.01523	18.0669	<0.001
Index eGFR	1.005547	1.005326	1.005768	<0.001
Race (Black)	0.8214825	0.8150512	0.8279646	<0.001
Gender (male)	0.5548802	0.5442205	0.5657487	<0.001
Marital status (married)	0.856719	0.8520937	0.8613693	<0.001
income	0.917636	0.9152596	0.9200186	<0.001
CCI	1.302306	1.299464	1.305154	<0.001
Cerebrovascular disease	1.045002	1.036135	1.053946	<0.001
CHF	1.564561	1.550446	1.578805	<0.001
Peripheral artery disease	1.005963	0.9971093	1.014895	0.187
Malignancies	.956596	0.9484227	0.9648398	<0.001
Liver disease	1.675132	1.648976	1.701704	<0.001
Rheumatoid disease	0.8956561	0.8796175	0.9119871	<0.001
Lung disease	1.207707	1.200297	1.215162	<0.001
AIDS	0.3004113	0.2906596	0.3104901	<0.001
Depression	1.107698	1.09725	1.118246	<0.001
Cardiovascular Disease	1.137638	1.129548	1.145785	<0.001
Statin use	0.5444413	0.5414156	0.5474839	<0.001
ACEI use	0.8987778	0.8931694	0.9044215	<0.001
Anti-Hypertensive use	1.0453	1.036063	1.05462	<0.001

BMI, body mass index; eGFR, estimated glomerular filtration rate, CCI, Charlson comorbidity index; CHF, congestive heart failure; AIDS, acquired immune deficiency syndrome; ACEI, angiotensin converting enzyme inhibitor

Supplemental Figure 1. Multivariable adjusted odds ratios (95% confidence intervals) of steeper slopes of estimated GFR vs. time (defined as slopes <-5 ml/min/1.73m^2/year), associated with various <u>mean BMI</u>-age joint categories in logistic regression models after <u>multiple imputations</u>. Model adjusted for gender, race, baseline eGFR, marital and income status, comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI <20 kg/m^2 and age <40yrs served as referent.

Supplemental Figure 2. Multivariable adjusted odds ratios (95% confidence intervals) of steeper slopes of estimated GFR vs. time (defined as slopes <-5 ml/min/1.73m^2/year), associated with various <u>mean BMI</u>-age joint categories in logistic regression models. Model adjusted for gender, race, baseline eGFR, marital and income status, comorbidities, and medications, and <u>also diabetes mellitus and baseline blood pressure</u>. Patients with BMI <20 kg/m^2 and age <40yrs served as referent.

Supplemental Figure 3. Multivariable adjusted odds ratios (95% confidence intervals) of steeper slopes of estimated GFR vs. time (defined as slopes <-5 ml/min/1.73m^2/year), associated with various <u>mean BMI</u>-age joint categories in logistic regression models in patients <u>with no hypertension at baseline</u>. Model adjusted for gender, race, baseline eGFR, marital and income status, comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI <20 kg/m^2 and age <40yrs served as referent.
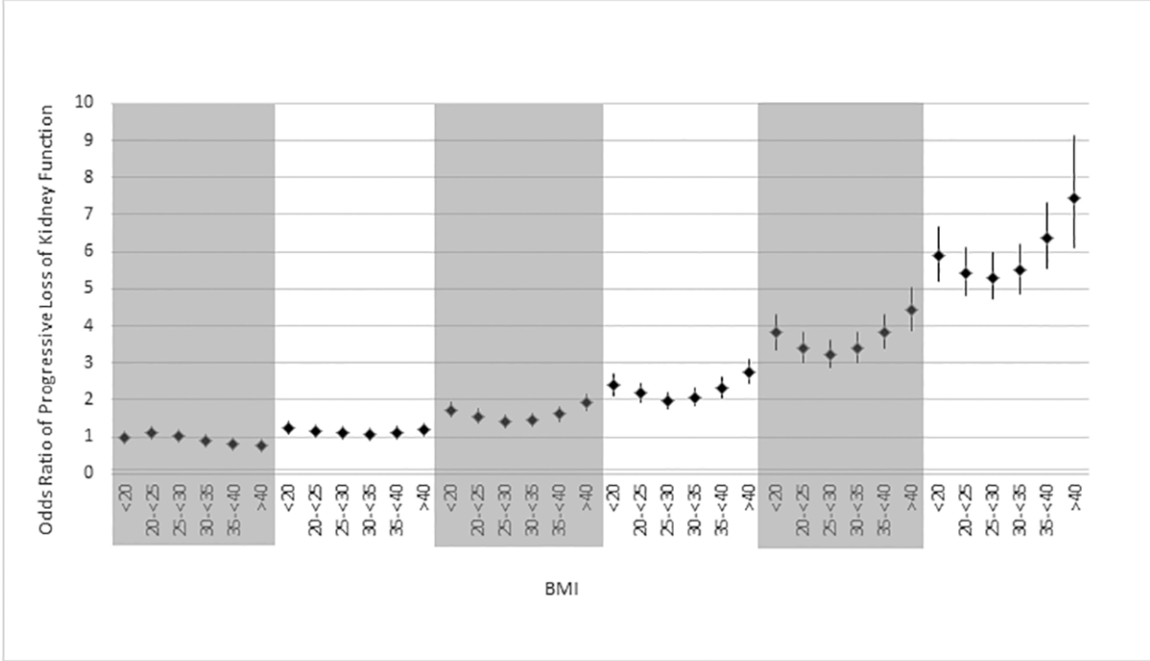
Supplemental Figure 4. Multivariable adjusted odds ratios (95% confidence intervals) of steeper slopes of estimated GFR vs. time (defined as slopes <-5 ml/min/1.73m^2/year), associated with various <u>mean BMI</u>-age joint categories in logistic regression models, <u>in the subgroup of</u>

patients with available urine albumin-creatinine ratio measurements. Model adjusted for gender, race, baseline eGFR, urine albumin-creatinine ratio, marital and income status, comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI <20 kg/m^2 and age <40yrs served as referent.

Supplemental Figure 5. Multivariable adjusted odds ratios (95% confidence intervals) of steeper slopes of estimated GFR vs. time (defined as slopes <-5 ml/min/1.73m^2/year), associated with various baseline BMI-age joint categories in logistic regression models. Model adjusted for gender, race, baseline eGFR, marital and income status, comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI <20 kg/m^2 and age <40yrs served as referent.

Supplemental Figure 6. Multivariable adjusted odds ratios (95% confidence intervals) of steeper slopes of estimated GFR vs. time (defined as slopes <-5 ml/min/1.73m^2/year), associated with various mean BMI categories in logistic regression models, in separate age subgroups. Model adjusted for gender, race, baseline eGFR, marital and income status, comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI 20-<25 kg/m^2 served as referent.
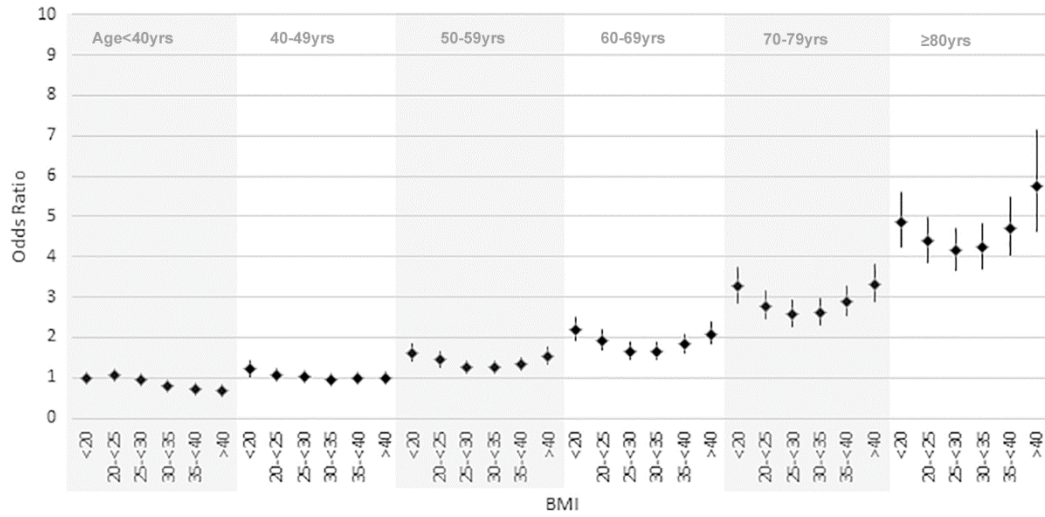
Supplemental Figure 7. Multivariable adjusted hazard ratios (95% confidence intervals) of all-cause mortality associated with various mean BMI-age joint categories in Cox models after multiple imputations. Model adjusted for gender, race, baseline eGFR, marital and income status,

comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI <20 kg/m^2 and age <40yrs served as referent.
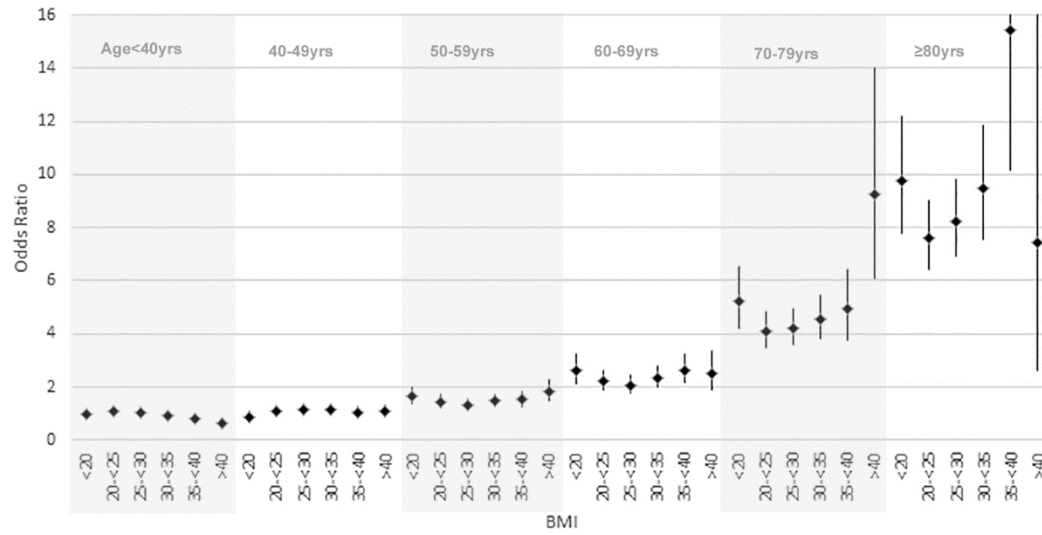
Supplemental Figure 8. Multivariable adjusted hazard ratios (95% confidence intervals) of all-cause mortality associated with various mean BMI-age joint categories in Cox models, in the subgroup of patients with available urine albumin-creatinine ratio measurements. Model adjusted for gender, race, baseline eGFR, urine albumin-creatinine ratio, marital and income status, comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI <20 kg/m^2 and age <40yrs served as referent.

Supplemental Figure 9. Multivariable adjusted hazard ratios (95% confidence intervals) of all-cause mortality associated with various baseline BMI-age joint categories in Cox models. Model adjusted for gender, race, baseline eGFR, marital and income status, comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI <20 kg/m^2 and age <40yrs served as referent.

Supplemental Figure 10. Multivariable adjusted hazard ratios (95% confidence intervals) of all-cause mortality associated with various mean BMI categories in Cox models, in separate age subgroups. Model adjusted for gender, race, baseline eGFR, marital and income status, comorbidities, and medications except for diabetes mellitus and baseline blood pressure. Patients with BMI 20-<25 kg/m^2 served as referent.
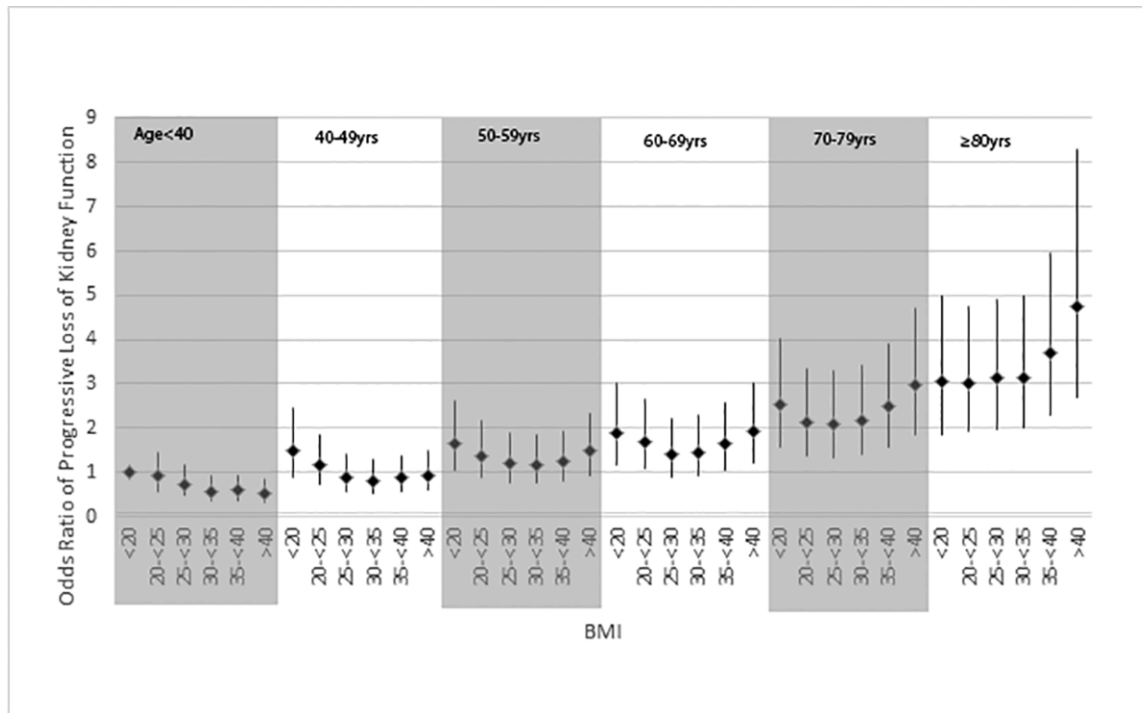
Supplemental figure 1. Odds ratios (95%CI) of steeper slopes associated with various mean

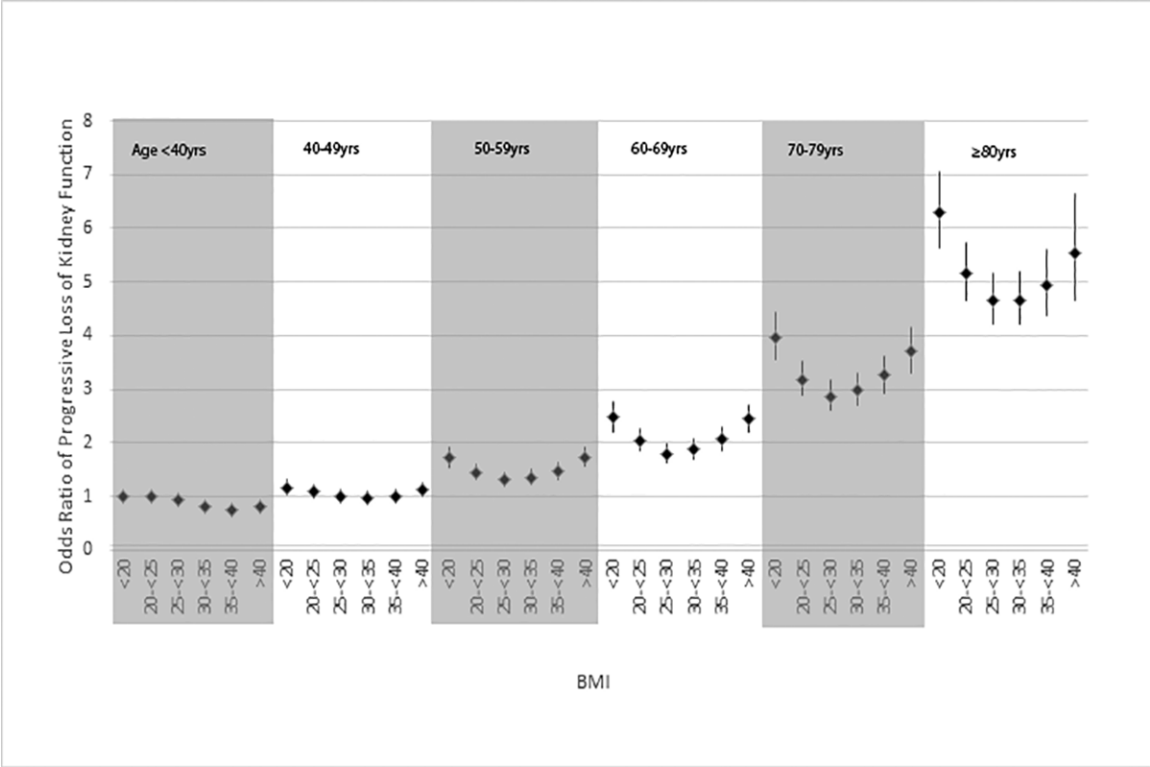BMI-age joint categories in logistic regression models after multiple imputations.

Supplemental figure 2. Odds ratios (95%CI) of steeper slopes associated with various mean

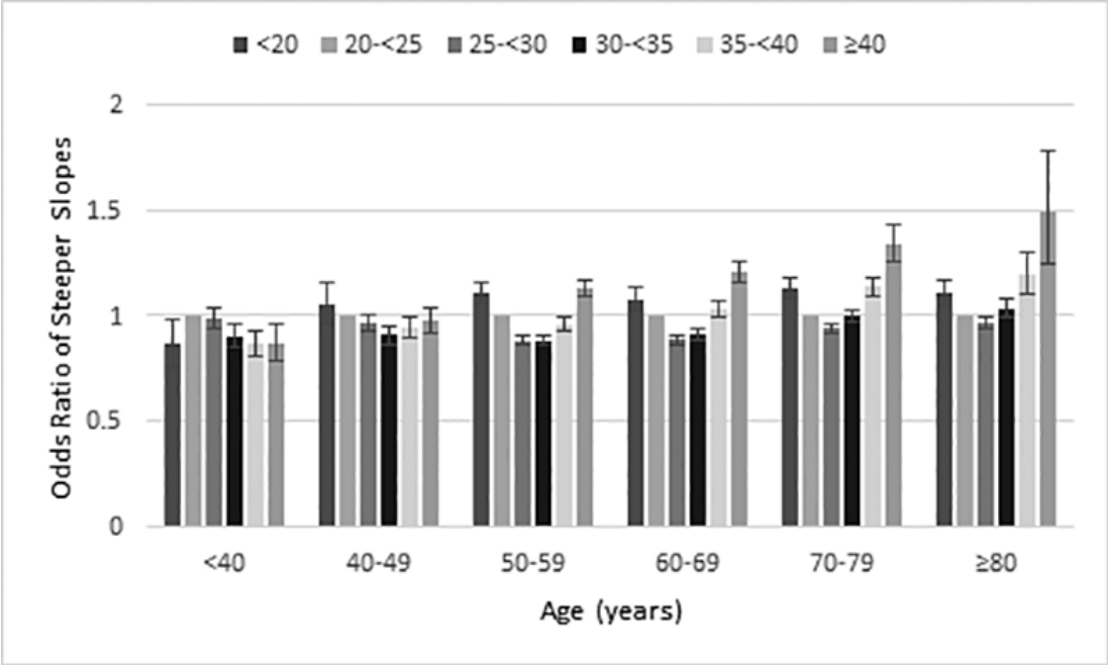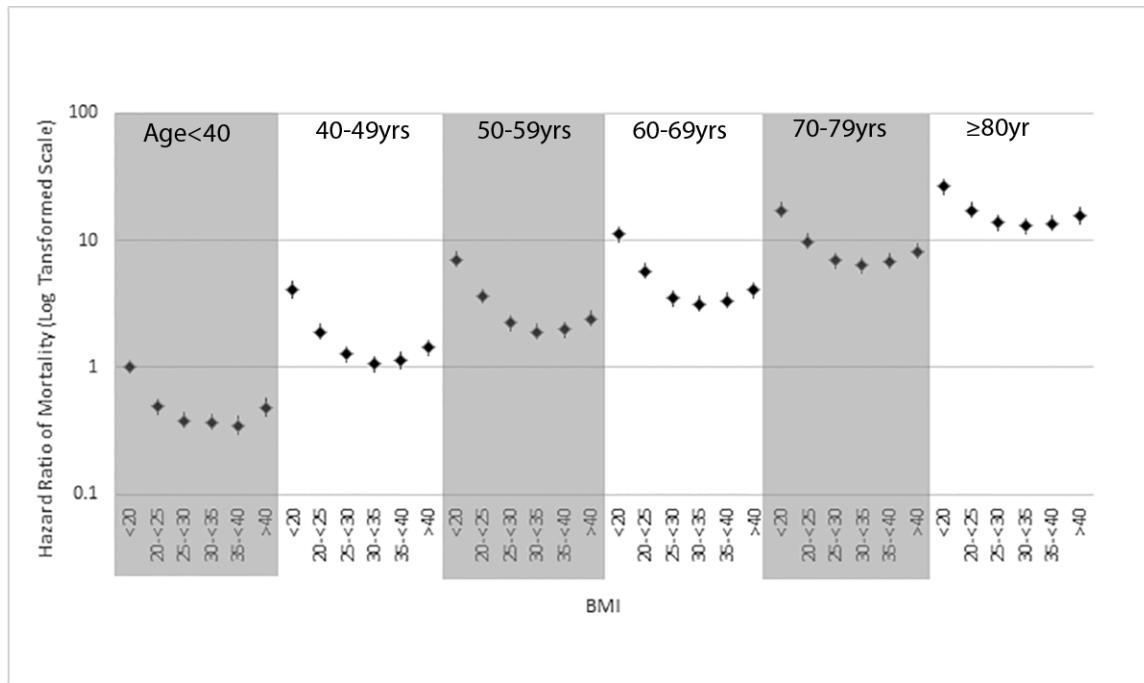BMI-age joint categories, adjusted for diabetes mellitus and baseline blood pressure

Supplemental figure 3. Odds ratios (95%CI) of steeper slopes ssociated with various mean

BMI-age joint categories in patients with no hypertension at baseline

Supplemental figure 4. Odds ratios (95%CI) of steeper slopes associated with various mean

BMI-age joint categories in the subgroup of patients with available urine albumin-creatinine ratio
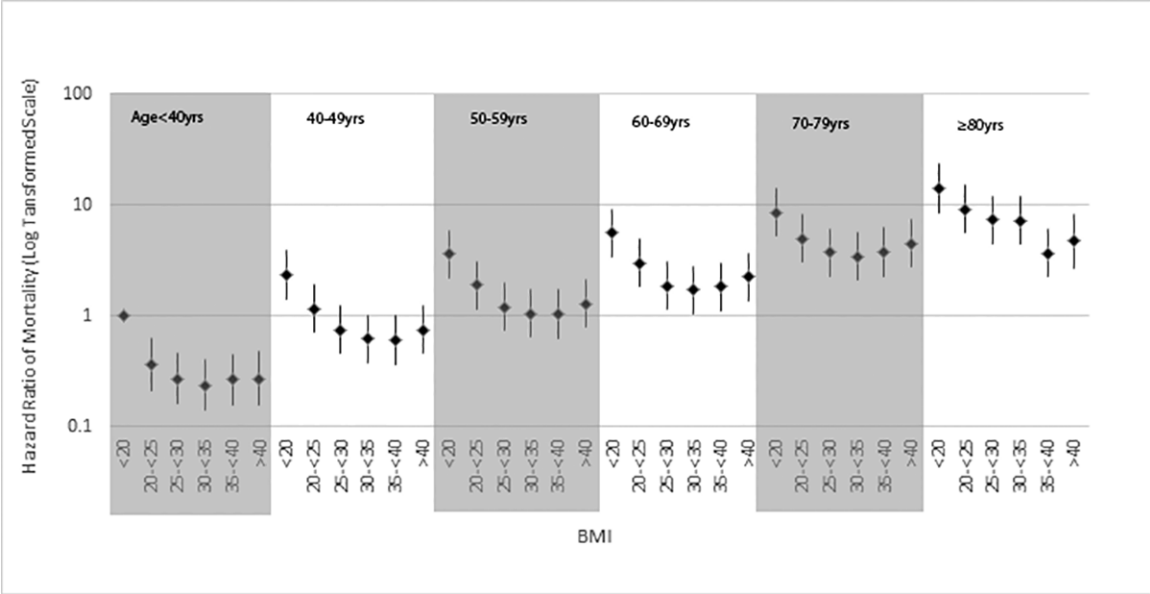
measurements

Supplemental figure 5. Odds ratios (95%CI) of steeper slopes associated with various baseline
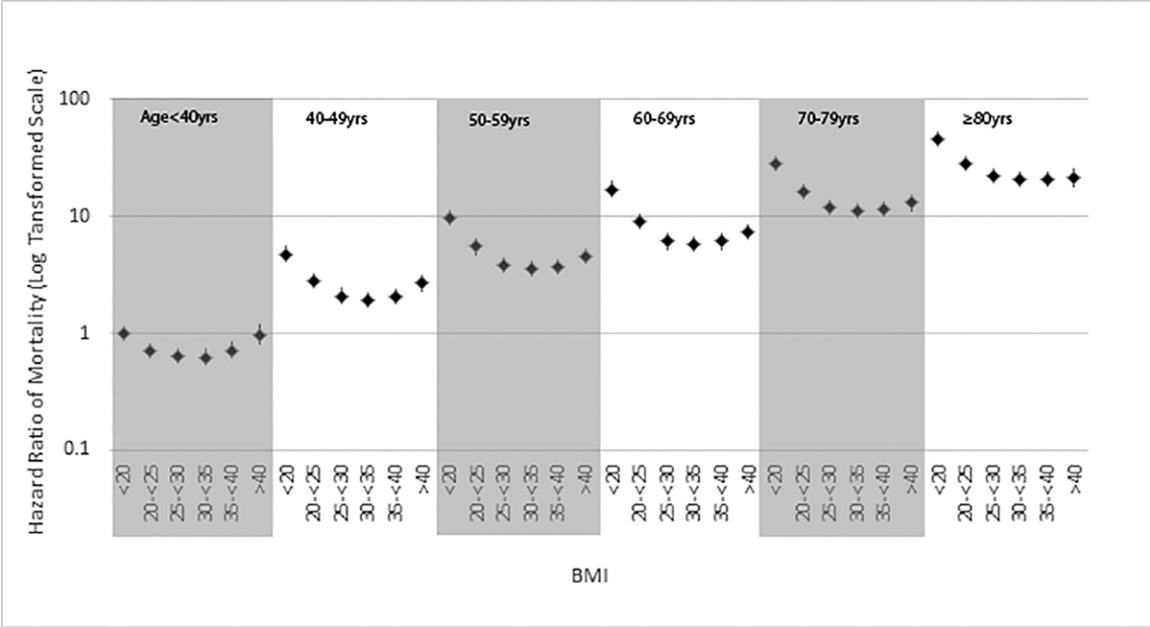
BMI-age joint categories

Supplemental figure 6. Odds ratios (95%CI) of steeper slopes associated with various mean

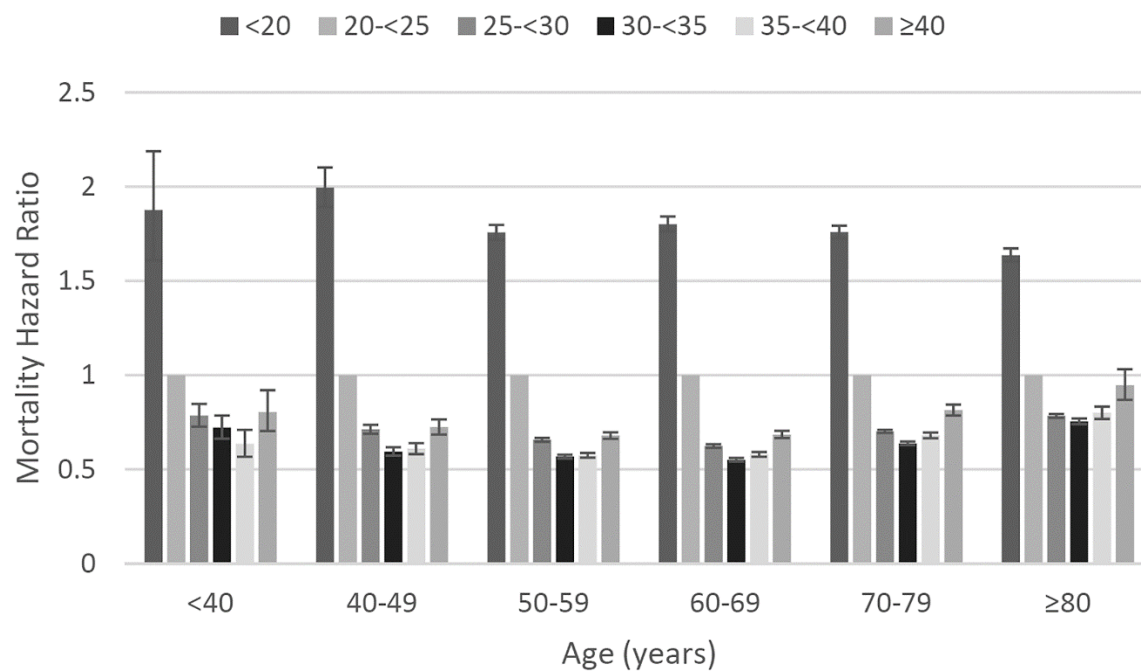BMI categories in separate age subgroups

Supplemental figure 7. Hazard ratios (95%CI) of all-cause mortality associated with various mean BMI-age joint categories, after multiple imputations

Supplemental figure 8. Hazard ratios (95%CI) of all-cause mortality associated with various mean BMI-age joint categories in the subgroup of patients with available urine albumin-creatinine ratio measurements

Supplemental figure 9. Hazard ratios (95%CI) of all-cause mortality associated with various baseline BMI-age joint categories

Supplemental figure 10. Hazard ratios (95% confidence intervals) of all-cause mortality associated with various mean BMI categories in separate age subgroups