SUPPLEMENTAL MATERIALS

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Appendix 1. Acronyms or abbreviations for studies included in the current report and their key references linked to the Web references

AASK:	African American Study of Kidney Disease and Hypertension[1]
ADVANCE:	The Action in Diabetes and Vascular Disease: Preterax and Diamicron Modified Release Controlled Evaluation (ADVANCE) trial[2]
Aichi:	Aichi Workers' Cohort[3]
AKDN:	Alberta Kidney Disease Network[4]
ARIC:	Atherosclerosis Risk in Communities Study[5]
BC CKD	British Columbia CKD Study[6]
CARE:	The Cholesterol and Recurrent Events (CARE) Trial[7]
CCF:	Cleveland Clinic CKD Registry Study[8]
CHS:	Cardiovascular Health Study[9]
CIRCS:	Circulatory Risk in Communities Study[10]
CRIB:	Chronic Renal Impairment in Birmingham[11]
Framingham:	Framingham Heart Study[12]
Geisinger:	Geisinger CKD Study[13]
GLOMMS-1:	Grampian Laboratory Outcomes, Morbidity and Mortality Studies – 1[14]
IPHS:	Ibaraki Prefectural Health Study[15]
KP Hawaii:	Kaiser Permanente Hawaii Cohort[16]
KPNW:	Kaiser Permanente Northwest[17]
KSHS:	Kangbuk Samsung Health Study
Maccabi:	Maccabi[18]
MASTERPLAN:	Multifactorial Approach and Superior Treatment Efficacy in Renal Patients with the Aid of a Nurse Practitioner[19]
MDRD:	Modification of Diet in Renal Disease Study[20]
MESA:	Multi-Ethnic Study of Atherosclerosis[21]
MRFIT:	Multiple Risk Factor Intervention Trial[22]
Nephro Test:	NephroTest Study[23]
NZDCS:	New Zealand Diabetes Cohort Study[24]
Ohasama:	Ohasama Study[25]
Pima:	Pima Indian Study[26]
PREVEND:	Prevention of Renal and Vascular End-stage Disease Study[27]
Rancho Bernardo:	Rancho Bernardo Study[28]
RENAAL:	Reduction of Endpoints in Non-insulin Dependent Diabetes Mellitus withthe Angiotensin II Antagonist Losartan[29]
Severance:	Severance Cohort Study[30]
Sunnybrook:	Sunnybrook Cohort[31]
Taiwan:	Taiwan MJ Cohort Study[32]
VA CKD:	Veterans Administration CKD Study[33]
ZODIAC:	Zwolle Outpatient Diabetes project Integrating Available Care[34]

Appendix 2. Data analysis overview and analytic notes for some of individual studies

Overview:

As previously reported,[35, 36] participating studies were asked to prepare a dataset with approximately 20 variables (event variables and dates and several predictors including age, sex, race, and repeated laboratory and vital data including serum creatinine measurement to estimate change in eGFR over the baseline period). Because the analysis used the CKD-EPI formula, the race variable only distinguished between black and non-black, under the assumption that this formula performs reasonably well in other ethnic groups. To minimize heterogeneity, we circulated guidelines for definitions of variables (e.g. hypertension, diabetes, smoking) and dataset preparation.

Prevalent cardiovascular disease (CVD) was defined as history of myocardial infarction, coronary revascularization, heart failure or stroke. Hypertension was defined as a blood pressure ≥ 140/90 mmHg or taking anti-hypertensive medication. Diabetes mellitus was defined as hemoglobin A1c ≥6.5%, fasting blood glucose ≥7.0 mmol/l, non-fasting glucose ≥11.1 mmol/l, or taking glucose lowering drugs.

Analyses were restricted to subjects aged 18 years or older. We instructed studies not to impute the two key kidney measures, eGFR (i.e., age, gender, race, and serum creatinine) and albuminuria. Zero values of ACR were treated as 0.1 for log transformation. For other variables in the models with missing values we imputed with the mean value of the covariate. Values of covariates, e.g., systolic blood pressure <50 or >300 mmHg were excluded from the analysis.

Out of 43 studies with repeated serum creatinine, 8 studies (AusDiab, Beaver Dam, CARE FOR HOMe, ESTHER, Gubbio, HUNT, Okinawa, ULSAM) did not have enough data within antecedent periods of interest for the present study. For 24 of the 35 studies in the present study, analysis was done at the Data Coordination Center at Johns Hopkins University; for the remainder the standard code was run in-house at individual study centers, with the output returned to the Data Coordinating Center. The code was written in STATA by the Data Coordinating Center. The standard code was designed to automatically save all output needed for the meta-analysis. The Data Coordinating Center then pooled the estimates across studies using STATA. Studies with outcomes fewer than 10 in any strata for particular analysis were excluded.

Studies were instructed to standardize and calibrate their serum creatinine to their best ability and report the method of standardization. The reported creatinine calibration allows grouping studies into studies that reported using an IDMS traceable method or conducted some serum creatinine calibration to IDMS traceable methods (AKDN, CCF, Geisinger, GLOMMS-1, KPNW, Maccabi, NephroTest, Rancho Bernardo) and studies where the creatinine standardization was not done (AASK, ADVANCE, Aichi, ARIC, British Columbia CKD, CARE, CHS, CIRCS, CRIB, Framingham, IPHS, KP Hawaii, KSHS, MASTERPLAN, MDRD, MESA, MRFIT, Ohasama, Pima, PREVEND, RENAAL, Severance, Sunnybrook, Taiwan, ZODIAC). Retrospective assessment of creatinine calibration without direct collection of laboratory data is limited since substantial creatinine calibration differences have been documented even within a single laboratory using the same method over time.

Piecewise-linear splines were used to allow for non-linear association in a manner that still allows for a simple interpretation of the association within each segment and transparently shows changes in slope at clinically interpretable points. Estimates and standard errors for each point are the combination of all terms between that point and the reference point with covariances used for standard error estimates. For points in the same linear segment as the reference points statistical significance compared to the reference point is only dependent on the statistical significance of the slope for that segment. If the slope is statistically significant, all points on the segment will be statistically significant since smaller effect sizes near the reference point have proportionately small standard errors and the same statistical significance test.

Adjusted weighted average absolute risk was calculated using the weighted average baseline risk and meta-analyzed hazard ratios. Baseline risk (the risk when all the covariates are zero) was calculated in each cohort for the following combination of covariates after centering the continuous covariates: age at 60 year, non-black, male, 0% change in eGFR, a first eGFR of 50 ml/min/1.73 m^2, a systolic blood pressure of 130 mmHg, a total cholesterol of 5 mmol/L, no history of diabetes or CVD. These baseline risks for 1-y follow-up after baseline across cohorts were averaged with weights based on square root of the number of events. Successive follow-up periods multiply by the ratio of that time and the previous time (e.g., 3 year risk vs. 1 year risk) to obtain consistent estimates despite fewer cohorts having longer follow-up.

Following the published results from individual studies, we assumed the proportional hazards model provided the best summary of the data in each study and did not summarize statistics on deviations from proportionality across the covariates.

Notes for individual studies:

AASK: This study is an intervention study which includes African American participants only. All participants were free of diabetes.

ADVANCE: This study is an intervention study which includes participants with diabetes only.

AKDN: Although this study has not collected information on race, the proportion of blacks in the province of Alberta is considered <1%.[4] Other variables that were not collected in this study are systolic blood pressure, total cholesterol concentration, and smoking. Restricted analyses to those with at least 3 repeated serum creatinine measurement.

ARIC: Serum creatinine was repeated three years apart and thus this cohort could contribute to 3-y antecedent period analysis only. Albuminuria was not available in this time frame.

BC CKD: Includes patients referred to nephrologists and maintained in follow-up practice or with eGFR <60 ml/min/1.73m^2 at enrollment.

CARE: This study is an intervention study in which all patients had a previous myocardial infarction.

CCF: Includes patients who had at least one face-to-face outpatient encounter with a Cleveland Clinic health care provider and had two eGFR < 60 ml/min/1.73m^2 90 days apart. Albuminuria was available in 35% of participants.

CHS: This study consists of participants only aged 65 or older. Serum creatinine was repeated three years apart and thus this cohort could contribute to 3-y antecedent period analysis only.

CRIB: This study includes hospital nephrology outpatients with creatinine >130 µmol/L. Serum creatinine was repeated two years apart and this this cohort could contribute to 2-y antecedent period analysis only.

Geisinger: This study includes all Geisinger primary care recipients, 18 years or older as of index date, and who have CKD, defined as two or more outpatient eGFR values < 60 by CKD-EPI equation. Covariates obtained most closely to index date within a past year were included in models. Albuminuria was available in 13% of participants.

GLOMMS-1: This study included adult patients that resided in Grampian with abnormal renal function tests measured from January to June 2003 (creatinine >150 µmol/L for men and 130 µmol/L for women). This study did not collect data on use of anti-diabetic or anti-hypertensive medication, total cholesterol, systolic or diastolic blood pressure. Diabetes and hypertension status were coded based on hospital physician or general practitioner diagnosis recorded in case notes. Albuminuria was available in 57% of participants. The ethnicity of the Grampian population is relatively homogenous with overall 98.3% of males and 98.4% of females being white. Indians account for 0.2% of the population, Pakistani and other South Asian individuals account for 0.3%, Chinese 0.3% and 0.8% are recorded as other. [37]

KP Hawaii: This study measured ACR and/or PCR.

KPNW: This study included patients that were HMO members with CKD stage 3 or 4 without a history of renal replacement therapy. This study defined diabetes using their own clinical tool that includes diagnosis codes, treatment codes, and laboratory values. This study has not collected use of anti-diabetic medications.

Maccabi: Albuminuria available in 11% of participants.

MASTERPLAN: This study measured ACR in patients with albuminuria in the low range, PCR in patients with overt proteinuria.

MDRD: This clinical trial has not collected use of anti-diabetic or anti-hypertensive medications.

MESA: Serum creatinine was repeated three years apart and thus this cohort could contribute to 3-y antecedent period analysis only.

MRFIT: This study is an intervention study which includes men at above risk (study specified) for coronary heart disease based on higher levels of blood pressure, serum cholesterol, and

cigarette use. Men were excluded if their serum creatinine was > 2.0 mg/dl. The study only included men.

NephroTest: This study includes nephrologist referred patients with diagnosed CKD stages 1-5.

NZDCS: All participants had a diagnosis of diabetes according to primary care provider.

Ohasama: This study has not collected data on use of anti-diabetic medications.

Pima: This study consists entirely of Pima and the closely-related Tohono O'odham Indians. ACR was measured in a spot urine specimen.

PREVEND: Serum creatinine was repeated at two years and three years apart and thus this cohort could contribute to 2-y and 3-y antecedent period analyses only.

Rancho Bernardo: Serum creatinine was repeated three years apart and thus this cohort could contribute to 3-y antecedent period analysis only.

RENAAL: This was a clinical trial comparing the effect of angiotensin receptor blocker vs. placebo regarding the prevention of CKD progression in those with diabetic nephropathy. All participants had diabetes.

Sunnybrook: This cohort includes patients seen in the nephrology clinics at Sunnybrook Hospital in Toronto, Ontario, Canada with CKD stage 3-5 or proteinuric CKD stage 1-2. Albuminuria was available in 27% of participants.

VA CKD: Includes all United States veterans with stable CKD stage 1-5 but not on dialysis. Albuminuria was available in 15% of participants.

ZODIAC: This study includes only individuals with type 2 diabetes.

Covariate availability by cohort:

Study	Total N	Total Chol	Systolic BP	% DM	% Hx of CVD
AASK	831	3%	0%	0%	0%
ADVANCE	9402	38%	0%	0%	0%
Aichi	1500	0%	0%	0%	0%
AKDN	230489	100%	100%	0%	0%
ARIC	13833	0.2%	0.1%	0.08%	1%
BC CKD	6276	27%	63%	0%	0%
CARE	3527	0.03%	100%	0%	0%
CCF	10564	29%	3%	0%	0%
CHS	4012	0.07%	0.02%	0%	0%
CIRCS	6768	0%	0.06%	0%	0%
CRIB*	190	10%	5%	0%	0%
Framingham	746	0%	0%	0%	0%
Geisinger	11593	21%	4%	0%	0%
GLOMMS 1	580	100%	100%	0%	0%
IPHS	57344	0%	0.003%	0%	0%
KP Hawaii	13357	23%	5%	0%	1%
KPNW*	522	11%	1%	0%	0%
KSHS	26674	0%	0.22%	0%	0%
Maccabi	560464	7%	30%	0%	0%
MASTERPLAN	538	18%	20%	0%	0%
MDRD	316	0%	1%	0%	0%
MESA	4942	0.04%	0.04%	0%	0%
MRFIT	11527	0.04%	0.09%	0%	0%
NephroTest	414	1%	3%	0%	1%
NZDCS	4388	1%	0.2%	0%	0%
Ohasama	996	0%	0%	0%	0%
Pima	786	0%	0.4%	0%	0%
PREVEND*	4740	0%	0.3%	0.4%	3%
Rancho Bernardo	477	0%	0%	0%	0%
RENAAL	885	13%	0%	0%	0%
Severance	3477	0%	0.2%	0%	0%
Sunnybrook	1889	30%	18%	0%	0%
Taiwan MJ	71000	0%	0.04%	0.07%	0.01%
VA CKD	216046	18%	40%	0.005%	0.005%
ZODIAC	784	4%	15%	0%	0%

* Data from 2 year. Otherwise from 3 year.							
<0.2% missing	0.2-1% missing	1-5% missing	5-20% missing	20-50% missing	>50% missing		Non-IPD study

Appendix 3. Acknowledgements and funding for collaborating cohorts

Study	List of sponsors
AASK	NIDDK
ADVANCE	National Health and Medical Research Council of Australia program grant 571281; Servier
Aichi	KAKENHI (09470112, 13470087, 17390185, 18590594, 20590641, 20790438, 22390133, 26293153)
AKDN	Canadian Institutes of Health Research; Alberta Innovates - Health Solutions; Kidney Foundation of Canada
ARIC	The Atherosclerosis Risk in Communities Study is carried out as a collaborative study supported by National Heart, Lung, and Blood Institute contracts (HHSN268201100005C, HHSN268201100006C, HHSN268201100007C, HHSN268201100008C, HHSN268201100009C, HHSN268201100010C, HHSN268201100011C, and HHSN268201100012C). The authors thank the staff and participants of the ARIC study for their important contributions.
BC Cohort	BC Provincial Renal Agency, an Agency of the Provincial Health Services Authority in collaboration with University of British Columbia.
CARE	Alberta Heritage Foundation for Medical Research/Alberta Innovates Health Solutions Interdisciplinary Team Grants Program
CCF	Supported by an unrestricted educational grant from Amgen to the Department of Nephrology and Hypertension.
CHS	This research was supported by contracts HHSN268201200036C, HHSN268200800007C, N01 HC55222, N01HC85079, N01HC85080, N01HC85081, N01HC85082, N01HC85083, N01HC85086, and grant HL080295 from the National Heart, Lung, and Blood Institute (NHLBI), with additional contribution from the National Institute of Neurological Disorders and Stroke (NINDS). Additional support was provided by AG023629 from the National Institute on Aging (NIA). A full list of principal CHS investigators and institutions can be found at CHS-NHLBI.org.
CIRCS	N/A
CRIB	British Renal Society Project Grant Award British Heart Foundation Project Grant Award.
Framingham	NHLBI Framingham Heart Study (N01-HC-25195).
Geisinger	Geisinger Clinic
GLOMMS-1	Chief Scientist Office CZH/4/656
IPHS	N/A
KP Hawaii	N/A
KPNW	Amgen
KSHS	

Maccabi	
MASTERPLAN	The MASTERPLAN study is a clinical trial with trial registration ISRCTN registry: 73187232. Sources of funding: The MASTERPLAN Study was supported by grants from the Dutch Kidney Foundation (Nierstichting Nederland, number PV 01), and the Netherlands Heart Foundation (Nederlandse Hartstichting, number 2003 B261). Unrestricted grants were provided by Amgen, Genzyme, Pfizer and Sanofi-Aventis.
MDRD	NIDDK UO1 DK35073 and K23 DK67303, K23 DK02904
MESA	This research was supported by contracts N01-HC-95159 through N01-HC-95169 from the National Heart, Lung, and Blood Institute and by grants UL1-RR-024156 and UL1-RR-025005 from NCRR. The authors thank the other investigators, the staff, and the participants of the MESA study for their valuable contributions. A full list of participating MESA investigators and institutions can be found at http://www.mesa-nhlbi.org.
MRFIT	The Multiple Risk Factor Intervention Trial was contracted by the National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH), Bethesda, Md. Follow-up after the end of the trial was supported with NIH/NHLBI grants R01-HL-43232 and R01-HL-68140. The principal investigators and senior staff of the clinical centers, coordinating center, other support centers and key committees are listed in a previous report (JAMA 1982; 248: 1465-1477).
NephroTest	The NephroTest CKD cohort study is supported by grants from: Inserm GIS-IReSP AO 8113LS TGIR; French Ministry of Health AOM 09114 and AOM 10245; Inserm AO 8022LS; Agence de la Biomédecine R0 8156LL, AURA, and Roche 2009-152-447G. The Nephrotest initiative was also sponsored by unrestricted grants from F.Hoffman-La Roche Ltd. The authors thank the collaborators and the staff of the NephroTest Study: François Vrtovsnik, Eric Daugas, Martin Flamant, Emmanuelle Vidal-Petiot (Bichat Hospital); Christian Jacquot, Alexandre Karras, Eric Thervet, Christian d'Auzac, P. Houillier, M. Courbebaisse, D. Eladari et G. Maruani (European Georges Pompidou Hospital); Jean-Jacques Boffa, Pierre Ronco, H. Fessi, Eric Rondeau, Emmanuel Letavernier, Jean Philippe Haymann, P. Urena-Torres (Tenon Hospital)
NZDCS	The New Zealand Diabetes Cohort study was supported by the New Zealand Health Research Council and Auckland Medical Research Foundation and the New Zealand Society for the Study of Diabetes.
Ohasama	Grant-in-Aid(H20-22Junkankitou[Seishuu]-Ippan-009, 013 and H23-Junkankitou [Senshuu]-Ippan-005) from the Ministry of Health, Labor and Welfare, Health and Labor Sciences Research Grants, Japan; Japan Atherosclerosis Prevention Fund.
Pima	This work was supported by the Intramural Research Program of the National Institute of Diabetes and Digestive and Kidney Diseases.
PREVEND	The PREVEND study is supported by several grants from the Dutch Kidney Foundation, and grants from the Dutch Heart Foundation, the Dutch Government (NWO), the US National Institutes of Health (NIH) and the University Medical Center Groningen, The Netherlands (UMCG). Dade

	Behring, Marburg, Germany supplied equipment and reagents for nephelometric measurement of urinary albumin.
Rancho Bernardo	NIA AG07181 and AG028507 NIDDK DK31801
RENAAL	The RENAAL trial was supported by Merck and Company.
Severance	Seoul city R&BD program (10526), Korea, The National R&D Program for Cancer Control, Ministry for Health, Welfare and Family affairs, Republic of Korea (1220180), and The National Research Foundation of Korea(NRF) grant funded by the Korea government(MEST) (2011-0029348).
Sunnybrook	
Taiwan	This study was supported by Taiwan Department of Health Clinical Trial and Research Centre of Excellence (DOH 101-TD-B-111-004)
VA CKD	This study was supported by resources from the US Department of Veterans Affairs. Opinions expressed in this paper are those of the authors' and do not represent the official opinion of the US Department of Veterans Affairs.
ZODIAC	N/A

Supplemental Table 1. Cohort demographic characteristics by estimated glomerular filtration rate (eGFR) slope category

	Slope <-5ml/y				Slope ≥-5ml/y to ≤5ml/y				Slope >5ml/y			
Study	**%N**	**Age**	**%Female**	**%Black**	**%N**	**Age**	**%Female**	**%Black**	**%N**	**Age**	**%Female**	**%Black**
CKD cohorts												
AASK	14	55 (11)	43	100	82	58 (10)	38	100	4	55 (11)	43	100
BC CKD	13	65 (15)	40	0.4	84	73 (13)	47	0.4	3	67 (15)	52	1
CCF	10	73 (12)	54	18	85	75 (11)	54	12	6	72 (13)	65	14
Geisinger	12	72 (10)	59	2	77	73 (9)	60	1	11	70 (10)	61	1
GLOMMS 1	6	64 (18)	54	0	88	73 (12)	49	0	6	74 (9)	42	0
KPNW	53	69 (10)	54	0	45	72 (10)	50	0	2	60 (na)	0	0
MASTERPLAN	8	60 (14)	30	0	91	64 (12)	31	0	1	54 (15)	50	0
MDRD	20	49 (12)	42	6	79	56 (12)	38	4	1	53 (23)	100	0
NephroTest	11	58 (16)	30	14	85	61 (14)	29	11	4	56 (15)	39	11
RENAAL	42	62 (7)	31	18	58	64 (7)	38	13	0.1	70 (na)	100	0
Sunnybrook	22	61 (17)	40	0	74	65 (17)	43	0	3	57 (19)	52	0
VA_CKD	12	74 (10)	2	15	80	76 (9)	3	9	7	74 (10)	4	11
Sub-Total	**12**	**73 (11)**	**9**	**15**	**80**	**76 (10)**	**9**	**9**	**7**	**73 (10)**	**11**	**10**
Other (General Population and High Risk cohorts)												
ADVANCE	20	69 (6)	48	0.3	72	69 (6)	39	0.4	9	69 (6)	57	0.2
Aichi	16	51 (7)	18	0	73	51 (6)	16	0	11	50 (6)	18	0
AKDN	11	59 (17)	65	0	84	60 (15)	59	0	4	56 (17)	61	0
ARIC	20	57 (6)	64	35	78	58 (6)	53	20	3	57 (6)	55	31
CARE	30	61 (9)	18	3	69	62 (9)	11	3	0.3	56 (11)	0	0
CHS	6	76 (6)	71	6	86	75 (5)	56	4	8	75 (5)	58	4
CIRCS	9	58 (9)	66	0	87	58 (9)	64	0	4	56 (8)	75	0
Framingham	11	63 (10)	51	0	84	61 (10)	54	0	5	61 (9)	57	0
IPHS	11	61 (10)	72	0	87	62 (10)	67	0	1	62 (10)	80	0
KP Hawaii	13	63 (13)	52	0	81	65 (13)	49	0	5	62 (14)	52	0
KSHS	8	43 (7)	52	0	90	44 (7)	31	0	3	42 (6)	33	0
Maccabi	9	53 (17)	59	0	87	53 (16)	58	0	4	47 (17)	70	0
MESA	8	66 (10)	55	44	90	65 (10)	52	27	2	64 (10)	38	45
MRFIT	6	50 (6)	0	11	89	50 (6)	0	7	5	49 (6)	0	9
NZDCS	26	64 (13)	51	0	69	65 (13)	50	0	4	63 (14)	58	0
Ohasama	8	67 (8)	68	0	89	67 (8)	67	0	3	65 (10)	84	0

Pima	8	40 (14)	73	0	89	34 (13)	60	0	3	31 (12)	77	0
PREVEND	18	53 (10)	49	1	80	56 (11)	46	1	1	55 (7)	46	0
RanchoBernardo	11	77 (10)	62	0	80	77 (10)	61	0	9	80 (10)	77	0
Severance	34	47 (9)	39	0	61	49 (9)	31	0	4	48 (9)	59	0
Taiwan MJ	17	42 (12)	60	0	76	44 (13)	49	0	7	41 (12)	50	0
ZODIAC	12	71 (9)	56	0	85	70 (11)	57	0	3	68 (12)	73	0
Sub-Total	**11**	**54 (17)**	**60**	**1**	**85**	**55 (16)**	**56**	**0**	**4**	**50 (17)**	**63**	**1**
Total	**11**	**58 (17)**	**49**	**4**	**84**	**59 (17)**	**48**	**2**	**5**	**57 (19)**	**48**	**3**

Characteristics of the chronic kidney disease (n = 12) and other (general population and high cardiovascular risk, n = 22) cohorts that could provide data for a 3 year antecedent period. %N – proportion of cohort belonging to a given slope category; Slope <-5ml/yr – declining eGFR group with an annualized eGFR slope of less than minus 5 ml/min/1.73m^2/year; Slope ≥-5ml/y to ≤5ml/y – stable eGFR group with an annualized GFR greater than or equal to minus 5 and less than or equal to plus 5 ml/min/1.73m^2/year; Slope >5ml/yr – increasing eGFR group with an annualized eGFR slope of greater than plus 5 ml/min/1.73m^2/year.

Supplemental Table 2. Additional cohort characteristics by eGFR slope category for cohorts able to contribute data for a 3-year antecedent period.

	Slope <-5ml/y					Slope ≥-5ml/y to ≤5ml/y					Slope >5ml/y				
Study	**eGFR 1st**	**eGFR Last**	**% Alb**	**% DM**	**% CVD**	**eGFR 1st**	**eGFR Last**	**% Alb**	**% DM**	**% CVD**	**eGFR 1st**	**eGFR Last**	**% Alb**	**% DM**	**% CVD**
CKD cohorts															
AASK	49 (15)	27 (15)	79	0	50	47 (14)	46 (17)	65	0	50	49 (11)	70 (14)	72	0	57
BC CKD	52 (20)	28 (16)	85	65	14	35 (14)	32 (15)	71	53	16	39 (17)	59 (18)	64	55	23
CCF	49 (9)	33 (11)	45	44	32	46 (10)	46 (13)	29	32	30	46 (10)	68 (14)	28	34	29
Geisinger	53 (6)	38 (12)	86	57	44	52 (7)	54 (11)	78	38	27	50 (9)	72 (12)	68	40	30
GLOMMS 1	42 (13)	20 (9)	89	74	40	34 (8)	33 (11)	78	61	48	33 (7)	54 (9)	60	52	51
KPNW	71 (14)	43 (7)	14	54	64	59 (7)	48 (8)	4	63	54	47 (na)	59 (na)	0	0	100
MASTERPLAN	44 (14)	24 (11)	61	30	33	40 (15)	38 (17)	38	27	30	41 (16)	65 (19)	25	25	25
MDRD	40 (11)	19 (9)	95	6	9	36 (14)	31 (15)	86	4	12	46 (14)	56 (7)	50	0	50
NephroTest	57 (20)	34 (21)	95	36	16	41 (18)	39 (19)	96	26	22	49 (12)	69 (13)	83	22	17
RENAAL	46 (13)	23 (12)	98	100	44	41 (13)	34 (15)	96	100	46	34 (na)	69 (na)	100	100	0
Sunnybrook	71 (27)	46 (25)	86	49	54	60 (31)	57 (31)	78	41	52	59 (28)	81 (28)	80	37	43
VA_CKD	62 (18)	42 (18)	50	61	45	54 (15)	54 (16)	33	45	42	54 (12)	73 (14)	0	44	42
Sub-Total	**61 (18)**	**41 (18)**	**53**	**60**	**44**	**53 (15)**	**53 (17)**	**35**	**44**	**40**	**53 (12)**	**73 (14)**	**6**	**44**	**40**
Other (General Population and High Risk cohorts)															
ADVANCE	85 (16)	59 (15)	33	100	30	78 (17)	76 (17)	30	100	28	66 (13)	88 (11)	30	100	28
Aichi	99 (11)	76 (12)	na	13	2	93 (14)	92 (12)	na	11	1	79 (10)	105 (22)	na	7	2
AKDN	90 (20)	68 (21)	na	12	7	84 (20)	82 (20)	na	8	5	71 (18)	92 (17)	na	8	7
ARIC	100 (14)	78 (15)	6	18	12	95 (14)	91 (14)	5	15	11	76 (12)	97 (12)	4	22	12
CARE	87 (13)	65 (13)	14	16	100	71 (14)	66 (13)	11	12	100	64 (13)	82 (16)	18	18	100
CHS	77 (13)	57 (14)	na	25	70	68 (15)	69 (15)	na	16	63	61 (11)	80 (10)	na	16	64
CIRCS	91 (12)	72 (12)	4	10	3	83 (13)	81 (13)	3	7	2	72 (9)	91 (10)	3	8	1
Framingham	97 (19)	70 (17)	na	17	12	91 (16)	89 (15)	na	9	4	73 (10)	93 (9)	na	11	5
IPHS	91 (12)	70 (12)	3	9	11	86 (13)	82 (13)	2	9	9	71 (10)	91 (10)	1	12	10
KP Hawaii	80 (22)	58 (24)	67	84	24	76 (23)	75 (24)	49	72	22	67 (19)	86 (18)	47	65	23
KSHS	101 (10)	82 (10)	3	6	0	88 (11)	86 (10)	2	6	1	79 (9)	98 (9)	2	9	1
Maccabi	100 (21)	79 (22)	22	17	4	96 (20)	94 (20)	10	15	3	85 (17)	104 (18)	13	10	3
MESA	87 (17)	65 (17)	7	30	6	83 (16)	81 (16)	5	14	2	69 (15)	91 (14)	3	26	4
MRFIT	94 (12)	74 (13)	28	10	8	88 (13)	88 (13)	17	10	4	78 (9)	97 (9)	17	15	4
NZDCS	86 (22)	59 (22)	15	100	17	76 (21)	73 (21)	8	100	11	66 (20)	87 (19)	7	100	11
Ohasama	87 (9)	69 (10)	4	8	3	83 (11)	82 (11)	4	8	2	70 (8)	89 (10)	0	13	3

Pima	115 (28)	87 (34)	15	54	0	123 (15)	121 (15)	14	32	0	110 (19)	132 (20)	0	31	0
PREVEND	91 (12)	72 (12)	57	8	6	80 (14)	76 (14)	20	9	6	70 (14)	91 (13)	12	46	8
Rancho Bernardo	77 (15)	54 (17)	19	21	19	72 (16)	70 (17)	16	14	19	60 (12)	82 (10)	31	20	27
Severance	99 (12)	75 (11)	3	2	1	82 (14)	80 (14)	3	4	2	73 (11)	94 (12)	1	7	3
Taiwan MJ	106 (14)	84 (14)	2	3	2	93 (16)	92 (16)	1	3	2	83 (12)	105 (15)	1	3	2
ZODIAC	75 (17)	51 (17)	16	100	42	68 (16)	65 (17)	5	100	31	58 (12)	79 (12)	9	100	14
Sub-Total	**96 (20)**	**75 (21)**	**21**	**17**	**7**	**92 (20)**	**90 (20)**	**14**	**14**	**5**	**80 (18)**	**100 (18)**	**14**	**12**	**5**
Total	**88 (25)**	**67 (25)**	**29**	**27**	**15**	**84 (24)**	**83 (24)**	**18**	**19**	**11**	**72 (20)**	**92 (21)**	**11**	**21**	**15**

Slope <-5ml/yr – declining eGFR group with an annualized eGFR slope of less than minus 5 ml/min/1.73m^2/year; Slope ≥-5ml/y to ≤5ml/y – stable eGFR group with an annualized GFR greater than or equal to minus 5 and less than or equal to plus 5 ml/min/1.73m^2/year; Slope >5ml/yr – increasing eGFR group with an annualized eGFR slope of greater than plus 5 ml/min/1.73m^2/year; eGFR 1st – mean (std. deviation, SD) eGFR at beginning of antecedent period in ml/min/1.73m^2; eGFR Last – mean (SD) eGFR at end of antecedent period in ml/min/1.73m^2; %Alb – proportion of participants with urine albumin-to-creatinine ratio ≥30 mg/g or urine protein-to-creatinine ratio ≥50 mg/g or dipstick protein ≥1+; %DM – percentage of subjects with diabetes. %CVD – percentage of subjects with prior cardiovascular disease.

Supplemental Table 3. Multiple logistic regression analysis for the adjusted odds ratios associated with given baseline factors for an antecedent eGFR slope less than – 5 or greater than +5 ml/min/1.73m^2/yr for both CKD and other cohorts.

	slope <-5ml/y vs. slope ≥-5ml/y to ≤5ml/y		slope >5ml/y vs. slope ≥-5ml/y to ≤5ml/y	
Variables	CKD Cohorts	Other (General/high-risk Cohorts)	CKD Cohorts	Other (General/high-risk cohorts)
eGFR per ml at the range <60	0.93 (0.91, 0.94)	0.97 (0.97, 0.98)	1.16 (1.14, 1.17)	1.10 (1.09, 1.11)
eGFR per ml at the range ≥60	0.94 (0.93, 0.96)	0.91 (0.91, 0.92)	1.05 (1.01, 1.09)	1.07 (1.06, 1.08)
Age, per 10y	0.67 (0.62, 0.72)	0.48 (0.45, 0.51)	1.00 (0.85, 1.18)	1.43 (1.36, 1.49)
Female gender	0.86 (0.80, 0.92)	1.29 (1.20, 1.39)	1.33 (1.14, 1.56)	1.33 (1.17, 1.51)
Black	1.38 (1.25, 1.51)	1.87 (1.34, 2.61)	1.02 (0.90, 1.15)	0.97 (0.70, 1.35)
Systolic BP, per 5 mmHg	1.03 (1.02, 1.03)	0.99 (0.98, 1.01)	1.03 (1.02, 1.04)	1.00 (0.99, 1.01)
Diabetes	1.61 (1.49, 1.74)	1.41 (1.36, 1.47)	0.91 (0.74, 1.12)	1.20 (1.03, 1.40)
Total cholesterol, per mmol/L	1.02 (1.01, 1.04)	1.02 (1.00, 1.03)	0.94 (0.90, 0.98)	1.02 (1.01, 1.02)
History of CVD	1.07 (0.94, 1.21)	1.16 (1.09, 1.23)	1.40 (1.29, 1.52)	1.39 (1.30, 1.49)
logACR	1.13 (1.04, 1.23)	1.09 (1.05, 1.13)	0.96 (0.88, 1.04)	1.04 (1.00, 1.07)
ACR 30-300 vs. ACR<30	0.87 (0.80, 0.95)	1.13 (1.04, 1.22)	1.47 (1.25, 1.72)	1.07 (1.01, 1.14)
ACR 300+ vs ACR<30	1.38 (1.07, 1.780)	1.25 (1.13, 1.40)	1.20 (0.76, 1.89)	1.28 (1.19, 1.38)
Current smoker	1.10 (0.95, 1.29)	1.25 (1.16, 1.35)	1.04 (0.93, 1.15)	1.03 (0.97, 1.09)
BMI	1.00 (1.00, 1.01)	0.99 (0.99, 0.99)	0.99 (0.98, 1.00)	1.01 (1.00, 1.01)

Values in the table represent the exponentiation of the adjusted log odds ratio (95% confidence interval) associated with a one unit increase in the given baseline factor. CKD – chronic kidney disease cohorts; Other - general population and CV high-risk cohorts; slope <-5ml/yr vs slope >= -5 to <5ml/yr – represents an analysis where the event to be predicted is an estimated glomerular filtration rate (eGFR) slope of less than -5 ml/min/1.73m^2/year from among subjects with a declining or stable eGFR slope {i.e. those with a slope <= + 5 ml/min/1.73m^2/year); Slope >5ml/yr vs slope >= -5 to <5ml/yr – represents an analysis where the event to be predicted is an eGFR slope of more than +5 ml/min/1.73m^2/year from among subjects with an increasing or stable eGFR slope {i.e. those with a slope >= -5 ml/min/1.73m^2/year); y – year; BP – blood pressure; CVD - cardiovascular disease; logACR – natural logarithm of the urine albumin to creatinine ratio (in mg/g); BMI – body mass index.

Supplemental Table 4. Cohort characteristics and outcomes for a 3-year antecedent period

	During 3y Antecedent Period		After 3y Antecedent Period		
Cohorts (n=34)	**N**	**Median # Scre (IQR)**	**ACM events**	**CVM events**	**Mean (SD) Follow-up, years**
CKD cohorts					
AASK	831	9 (9-8)	115	n/a	6 (3)
BC CKD	6276	15 (11-20)	1,176	n/a	2 (1)
CCF	10564	8 (6-12)	666	n/a	1 (0.4)
Geisinger	11593	9 (6-13)	1,652	n/a	3 (2)
GLOMMS 1	572	12 (8-17)	201	65	3 (1)
KPNW	53	13 (7-20)	26	n/a	4 (2)
MASTERPLAN	538	11 (9-12)	67	25	3 (1)
MDRD	316	11 (10-11)	146	66	12 (4)
NephroTest	414	4 (3-4)	44	n/a	3 (2)
RENAAL	885	14 (13-14)	61	29	0.5 (0.4)
Sunnybrook	1889	10 (7-15)	361	155	5 (2)
VA_CKD	216046	7 (5-11)	52,754	n/a	3 (1)
Sub-Total	**249,977**	**7 (7-7)**	**57,269**	**340**	**3 (1)**
Other (General Population and High Risk cohorts)					
ADVANCE	9402	5 (5-5)	374	185	2 (0.4)
Aichi	1500	3 (2-4)	17	n/a	6 (1)
AKDN	230489	4 (3-6)	5,174	n/a	1 (0.5)
ARIC	13833	2 (2-2)	3,875	936	16 (4)
CARE	3527	4 (4-4)	141	84	2 (1)
CHS	4012	2 (2-2)	2,857	1,083	11 (5)
CIRCS	6768	3 (2-4)	840	n/a	16 (4)
Framingham	746	2 (2-2)	79	20	6 (1)
IPHS	57344	4 (3-4)	9,384	2,746	12 (2)
KP Hawaii	13357	8 (6-11)	302	n/a	1 (0.4)
KSHS	26674	3 (3-4)	77	n/a	2 (1)
Maccabi	560464	5 (3-7)	15,171	n/a	2 (1)
MESA	4942	2 (2-2)	192	40	4 (1)
MRFIT	11306	4 (4-4)	3,835	2266	22 (7)
NZDCS	4388	4 (3-7)	879	109	6 (2)
Ohasama	996	4 (3-4)	58	13	6 (1)
Pima	786	2 (2-2)	120	24	11 (7)
PREVEND	968	n/a	11	n/a	n/a
RanchoBernardo	477	2 (2-2)	133	50	7 (3)
Severance	3477	3 (2, 4)	62	n/a	11 (2)
Taiwan MJ	71000	3 (2-4)	1,381	241	7 (4)
ZODIAC	784	4 (4-4)	246	94	6 (2)
Sub-Total	**1,027,240**	**5 (4-5)**	**45,208**	**7,891**	**3 (4)**
Total	**1,277,217**	**5 (4-5)**	**102,477**	**8,231**	**3.2 (4.0)**

Characteristics of the chronic kidney disease (n = 12) and other (general population and high cardiovascular risk, n = 22) cohorts that could provide data for a 3 year (3y) antecedent period. ACM – all-cause mortality; CVM – cardiovascular mortality; SD – standard deviation; #Scre – number of serum creatinine measurements available during antecedent period; IQR – inter-quartile range.

Supplemental Table 5. Cohort characteristics and outcomes for 1- and 2-year antecedent periods

	During 1y Baseline Period		After 1y Baseline Period			During 2y Baseline Period		After 2y Baseline Period		
Cohorts (n=35)	**N**	**Median # Scre (IQR)**	**ACM events**	**CVM events**	**Mean (SD) Follow-up, years**	**N**	**Median # Scre (IQR)**	**ACM events**	**CVM events**	**Mean (SD) Follow-up, years**
CKD cohorts										
AASK	1005	5 (4-5)	153	n/a	7 (3)	913	7 (6-7)	136	n/a	6 (3)
BC CKD	10444	6 (4-8)	2457	n/a	3 (1)	8,644	10 (8-14)	1,797	n/a	3 (1)
CCF	25165	3 (2-5)	3592	n/a	2 (1)	17,140	6 (4-9)	1,749	n/a	1 (1)
CRIB	n/a	n/a	n/a	n/a	n/a	190	2 (2-2)	45	25	5 (2)
Geisinger	18325	4 (3-5)	3071	n/a	4 (2)	14,876	6 (4-9)	2,291	n/a	3 (2)
GLOMMS 1	781	5 (3-7)	391	143	4 (2)	665	8 (6-12)	284	90	3 (1)
KPNW	1192	4 (3-7)	554	n/a	5 (2)	522	7 (4-12)	240	n/a	5 (2)
MASTERPLAN	605	5 (4-5)	99	40	4 (1)	576	8 (7-9)	83	31	4 (1)
MDRD	750	5 (5-5)	334	154	13 (5)	618	8 (7-8)	275	123	13 (4)
NephroTest	579	2 (2-2)	77	11	4 (3)	553	3 (2-3)	62	12	4 (2)
RENAAL	1425	6 (6-6)	265	139	2 (1)	1,201	10 (9-10)	154	77	1 (1)
Sunnybrook	3846	4 (3-6)	757	337	6 (3)	2,657	7 (5-11)	527	227	5 (3)
VA_CKD	457402	3 (2-4)	146278	n/a	4 (2)	350,456	5 (4-7)	98,889	n/a	3 (1)
Sub-Total	**521,519**	**3 (3-3)**	**158,028**	**824**	**4 (2)**	**399,011**	**5 (5-5)**	**106,532**	**585**	**3 (2)**
Other (General Population and High Risk cohorts)										
ADVANCE	10361	3 (3-3)	762	375	4 (1)	9,999	4 (4-4)	557	268	3 (0.5)
Aichi	1805	2 (2-2)	28	n/a	8 (2)	1,812	2 (2-3)	16	n/a	7 (2)
AKDN	309367	2 (2-3)	14250	n/a	2 (1)	293,254	3 (3-4)	9,657	n/a	2 (1)
ARIC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CARE	3806	2 (2-2)	279	156	4 (1)	3,681	3 (3-3)	212	125	3 (1)
CHS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CIRCS	4638	2 (2-2)	675	n/a	19 (4)	4,461	3 (2-3)	617	n/a	17 (4)
Framingham	n/a	n/a	n/a	n/a	n/a	698	2 (2-2)	71	20	6 (1)
IPHS	64686	2 (2-2)	12138	3,637	13 (3)	62,466	3 (3-3)	11,002	3,249	12 (3)
KP Hawaii	27584	3 (2-4)	1121	n/a	2 (1)	20,629	5 (4-8)	693	n/a	1 (1)
KSHS	32955	2 (2-2)	158	22	3 (2)	63,027	3 (3-5)	174	23	3 (1)
Maccabi	642015	2 (2-3)	25818	n/a	4 (1)	604,670	8 (7-9)	20,241	n/a	4 (1)
MESA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MRFIT	11757	2 (2-2)	4125	2,419	24 (8)	11,527	3 (3-3)	3,986	2,344	23 (8)
NZDCS	15748	2 (2-3)	3182	415	6 (2)	9,006	3 (3-5)	1,809	221	6 (2)

Ohasama	1174	2 (2-2)	90	20	7 (2)	1,077	3 (3-3)	65	13	7 (1)
Pima	n/a	n/a	n/a	n/a	n/a	1,606	2 (2-2)	353	67	13 (8)
PREVEND	n/a	n/a	n/a	n/a	n/a	4,740	2 (2-2)	132	32	4 (1)
RanchoBernardo	n/a	n/a	n/a	n/a	n/a	207	2 (2-2)	26	n/a	7 (1)
Severance	5680	2 (2, 2)	120	12	12 (3)	6,263	2 (2, 3)	127	13	12 (2)
Taiwan MJ	111702	2 (2-2)	2895	542	8 (4)	98,845	2 (2-3)	2,041	401	7 (4)
ZODIAC	792	2 (2-2)	310	126	7 (3)	870	3 (3-3)	306	122	7 (3)
Sub-Total	**1,244,070**	**2 (2-2)**	**65,951**	**7,724**	**5 (4)**	**1,198,838**	**3 (3-3)**	**52,085**	**6,898**	**4 (4)**
Total	**1,765,589**	**2 (2-3)**	**223,979**	**8,548**	**4.4 (3.6)**	**1,597,849**	**3 (3-5)**	**158,617**	**7,483**	**3.7 (3.6)**

Characteristics of the chronic kidney disease (CKD, n = 13) and other (general population and high cardiovascular risk, n = 22) and cohorts using 1- and 2-year antecedent periods are shown. ACM – all-cause mortality; CVM – cardiovascular mortality; SD – standard deviation; #Scre – number of serum creatinine measurements available during antecedent period; ICR – inter-quartile range.

Supplemental Table 6. Hazard ratios of all-cause mortality and change in estimated glomerular filtration rate.

Slope change in eGFR (ml/min/1.73m^2/year) during the 3-year baseline period	CKD cohorts	Other (General/high-risk cohorts)
-15 ml	1.96 (1.55, 2.49)	2.16 (1.52, 3.08)
-14 ml	1.93 (1.52, 2.45)	2.10 (1.51, 2.91)
-13 ml	1.81 (1.48, 2.22)	2.02 (1.49, 2.74)
-12 ml	1.70 (1.51, 1.90)	1.94 (1.46, 2.59)
-11 ml	1.60 (1.54, 1.67)	1.88 (1.43, 2.46)
-10 ml	1.52 (1.45, 1.59)	1.74 (1.38, 2.20)
-9 ml	1.43 (1.38, 1.49)	1.57 (1.28, 1.92)
-8 ml	1.36 (1.32, 1.40)	1.41 (1.18, 1.68)
-7 ml	1.31 (1.18, 1.45)	1.27 (1.09, 1.47)
-6 ml	1.25 (1.09, 1.44)	1.15 (1.01, 1.31)
-5 ml	1.20 (1.00, 1.44)	1.07 (0.95, 1.20)
-4 ml	1.11 (0.99, 1.25)	1.06 (0.97, 1.15)
-3 ml	1.02 (0.98, 1.05)	1.05 (0.99, 1.12)
-2 ml	0.98 (0.92, 1.05)	1.01 (0.98, 1.05)
-1 ml	0.93 (0.86, 1.01)	0.96 (0.93, 1.00)
Stable	ref	ref
1 ml	1.07 (0.99, 1.16)	1.03 (0.98, 1.07)
2 ml	1.15 (1.03, 1.29)	1.10 (1.01, 1.20)
3 ml	1.26 (1.02, 1.57)	1.18 (1.02, 1.38)
4 ml	1.33 (1.07, 1.65)	1.24 (1.04, 1.48)
5 ml	1.44 (1.17, 1.78)	1.32 (1.06, 1.64)
6 ml	1.58 (1.29, 1.95)	1.43 (1.11, 1.84)
7 ml	1.83 (1.51, 2.22)	1.59 (1.19, 2.12)
8 ml	1.97 (1.61, 2.41)	1.72 (1.26, 2.35)
9 ml	2.16 (1.73, 2.70)	1.84 (1.30, 2.61)
10 ml	2.31 (1.82, 2.95)	1.98 (1.35, 2.90)

The reference group for calculation of hazard ratios (HRs) were patients with stable eGFR values (i.e. a slope = 0 ml/min/1.73m^2/yr). The HR for eGFR slope was adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and baseline (last) eGFR.

Supplemental Table 7. Absolute risks of all-cause mortality

Follow-up time	Last eGFR	6ml decline	4ml decline	2ml decline	Stable	2ml increase	4ml increase	6ml increase
	CKD cohorts							
1 year	20	4.6%	4.1%	3.7%	3.9%			
	35	2.9%	2.6%	2.3%	2.4%	2.7%	3.1%	3.6%
	50	1.8%	1.6%	1.4%	1.5%	1.7%	2.0%	2.3%
3 year	20	14%	13%	12%	12%	13%	15%	17%
	35	9.3%	8.3%	7.3%	7.6%	8.5%	9.7%	11%
	50	5.9%	5.3%	4.7%	4.8%	5.5%	6.3%	7.4%
5 year	20	28%	25%	23%	24%	26%	29%	33%
	35	18%	17%	15%	15%	17%	19%	22%
	50	12%	11%	9.5%	9.7%	11%	13%	15%
10 year	20	64%	60%	56%	57%	61%	66%	72%
	35	47%	44%	40%	41%	44%	49%	55%
	50	33%	30%	27%	28%	31%	35%	40%
	Other (General Population and High Risk cohorts)							
1 year	65	0.44%	0.39%	0.37%	0.37%	0.39%	0.45%	0.52%
	80	0.47%	0.43%	0.41%	0.41%	0.45%	0.50%	0.58%
	95	0.51%	0.46%	0.45%	0.44%	0.50%	0.57%	0.65%
3 year	65	1.7%	1.5%	1.5%	1.5%	1.6%	1.8%	2.1%
	80	1.9%	1.7%	1.6%	1.6%	1.8%	2.0%	2.3%
	95	2.0%	1.8%	1.8%	1.8%	2.0%	2.3%	2.6%
5 year	65	3.3%	2.9%	2.8%	2.8%	3.0%	3.4%	3.9%
	80	3.5%	3.2%	3.1%	3.0%	3.3%	3.7%	4.3%
	95	3.8%	3.5%	3.4%	3.3%	3.8%	4.3%	4.9%
10 year	65	9.3%	8.3%	7.9%	7.9%	8.5%	9.6%	11%
	80	9.9%	9.1%	8.8%	8.7%	9.5%	11%	12%
	95	11%	10%	10%	9.4%	11%	12%	14%

Absolute, all-cause mortality (ACM) risk at 1, 3, 5, and 10 years after the 3-year baseline period are depicted for the general population and high cardiovascular risk (GH) and chronic kidney disease (CKD) cohorts. Absolute risks were calculated using the adjusted HR for eGFR slopes of -6, -4, -2, 0, 2, 4, and 6 ml/min/1.73m^2/yr calculated from a 3-year baseline periods and the base-case hazard associated with the cohort. The base-case cumulative hazard of ACM at one year past the baseline period was calculated for the following set of covariates: a 60 year-old non-black man with no change in eGFR, a last eGFR of 50 ml/min/1.73m^2, a systolic blood pressure of 130 mm Hg, a total cholesterol of 5 mmol/L, and no history of diabetes or CV disease.

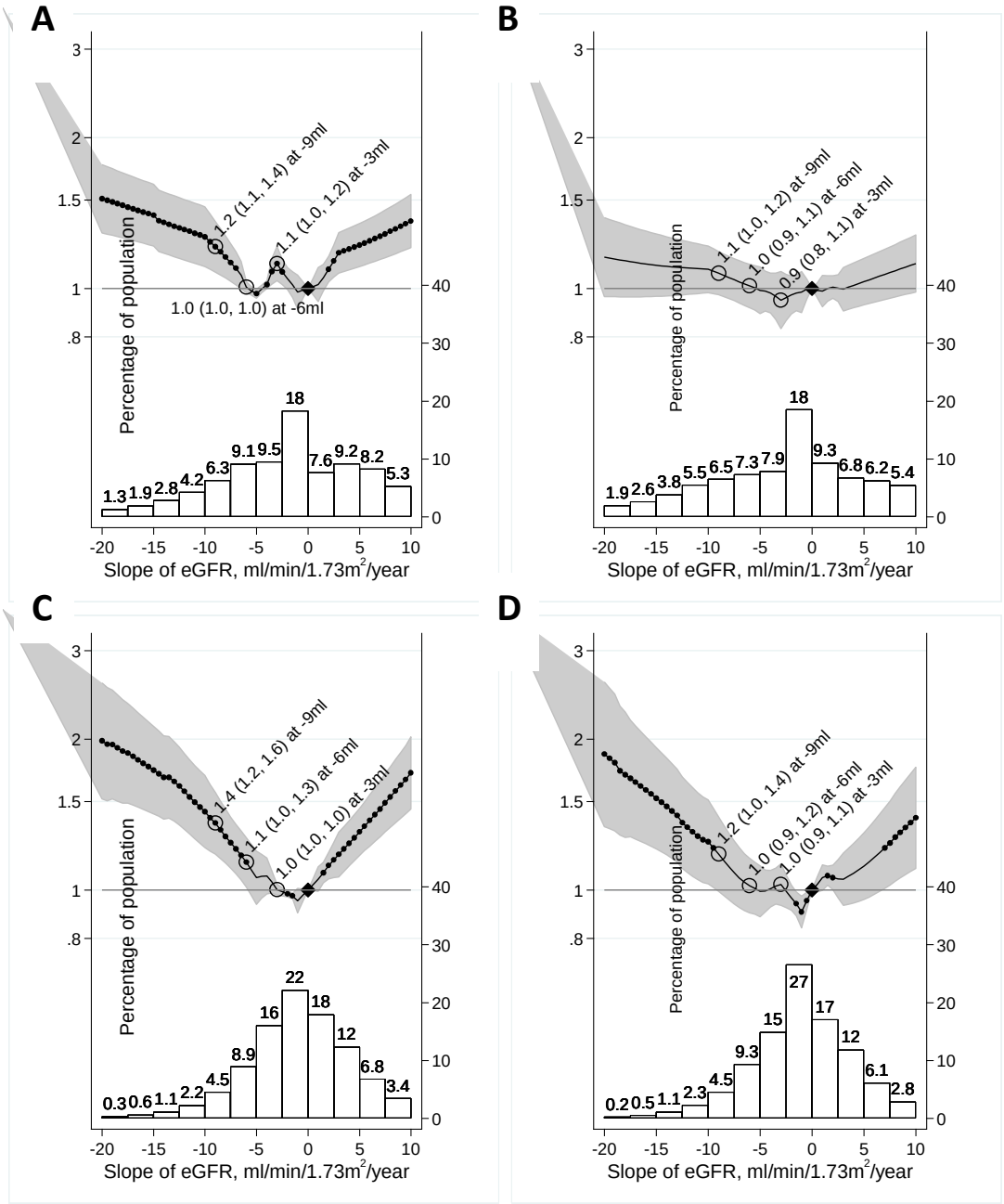
Supplemental Table 8. Change in concordance statistics after including estimated glomerular filtration rate (eGFR) slope in the model

Study	Delta c-stat.	95% confidence interval		% Weight
CKD cohorts				
AASK	0.006	-0.010	0.021	4.08
BC CKD	0.005	0.001	0.008	12.37
CCF	0.019	0.007	0.031	5.89
Geisinger	0.003	0.000	0.006	12.75
GLOMMS1	0.006	-0.002	0.014	8.30
KPNW	0.001	-0.019	0.021	2.78
MASTERPLAN	0.001	-0.012	0.014	5.19
MDRD	-0.005	-0.010	-0.001	11.88
NephroTest	0.008	-0.017	0.033	1.91
RENAAL	-0.003	-0.013	0.006	7.56
Sunnybrook	-0.001	-0.002	0.001	13.50
VA_CKD	0.007	0.007	0.008	13.77
Pooled estimate	0.003	-0.001	0.007	100.00
Other (General Population/High Risk cohorts)				
ADVANCE	0.002	-0.003	0.008	4.36
Aichi	-0.005	-0.023	0.014	0.59
ARIC	0.000	0.000	0.001	9.40
CARE	0.001	-0.010	0.012	1.54
CHS	0.002	0.000	0.003	8.57
CIRCS	0.000	-0.001	0.001	9.15
Framingham	0.012	-0.011	0.036	0.39
IPHS	0.000	0.000	0.000	9.49
KP Hawaii	0.023	0.011	0.034	1.42
KSHS	-0.005	-0.029	0.019	0.37
Maccabi	0.008	0.008	0.009	9.23
MESA	0.003	-0.002	0.008	4.51
MRFIT	0.001	0.000	0.002	9.01
NZDCS	0.001	-0.003	0.005	5.39
Ohasama	0.009	-0.006	0.024	0.91
Pima	-0.001	-0.012	0.009	1.71
PREVEND	0.002	-0.014	0.017	0.81
RanchoBernardo	0.002	0.000	0.003	8.18
Severance	0.009	-0.005	0.023	0.97
Taiwan MJ	0.001	0.000	0.002	9.13
ZODIAC	0.002	-0.003	0.007	4.86
Pooled estimate	0.002	0.001	0.004	100.00

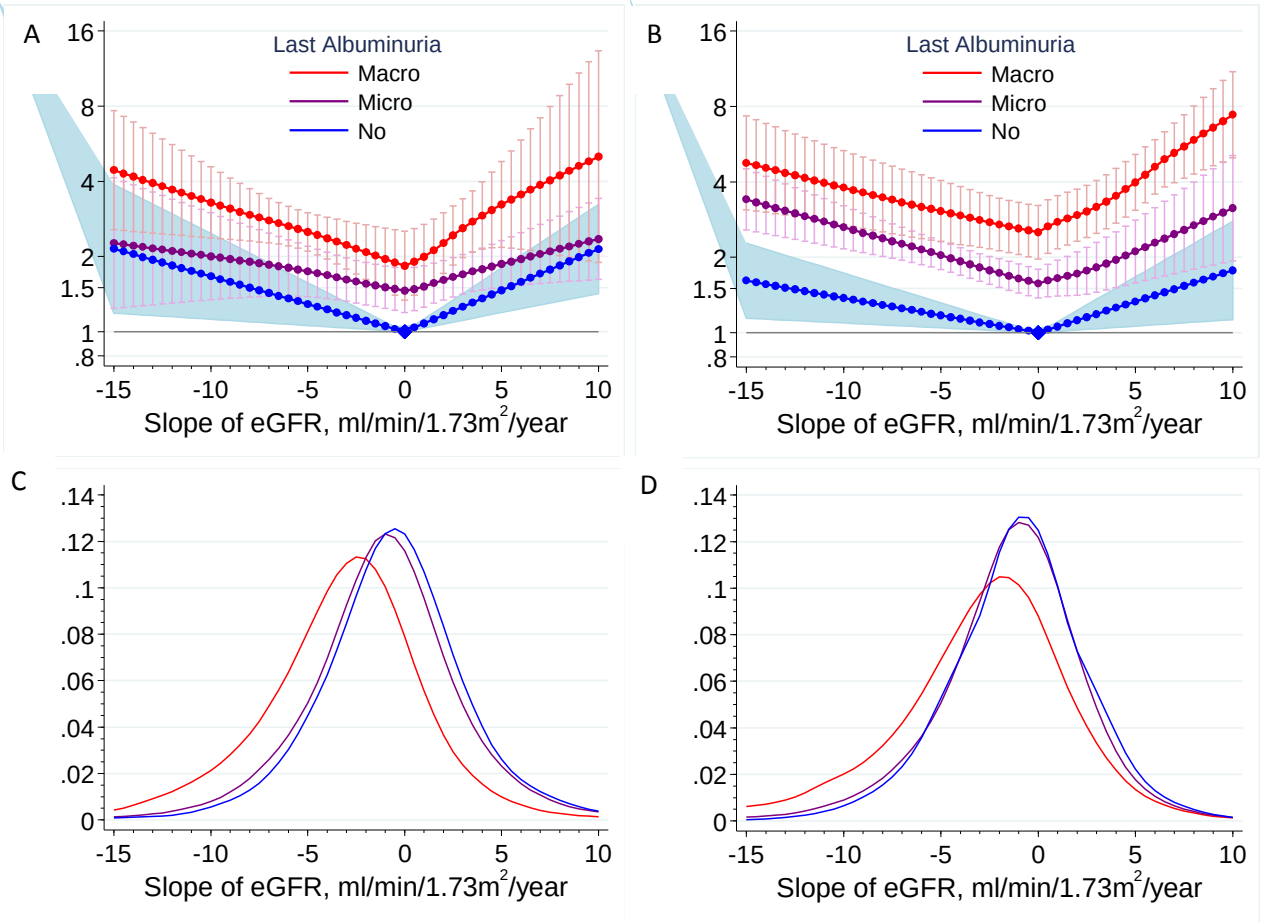
Values in the table represent the change in the proportion of concordant among all possible evaluable pairs of subjects (delta c-stat.) for a Cox regression model adjusted for age, sex, race (blacks vs. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and baseline (last) eGFR compared to a model with the same adjustment factors but which also included prior eGFR slope observed within a 3-year antecedent period. Pooled estimates across chronic kidney disease (CKD) and other (general population/high risk) cohorts were obtained using the random effects, DerSimonian and Laird, method.

For the CKD cohorts, Heterogeneity chi-squared = 131.44 (d.f. = 11) p = 0.000, I-squared (variation in delta c-stat. attributable to heterogeneity) = 91.6; Estimate of between-study variance Tau-squared = 0.0000; Test of delta c-stat.=0 : z= 1.77 p = 0.077. For the other cohorts, Heterogeneity chi-squared = 401.13 (d.f. = 20) p = 0.000; I-squared (variation in delta c-stat attributable to heterogeneity) = 95.0%; Estimate of between-study variance Tau-squared = 0.0000; Test of delta c-stat =0 : z= 2.79 p = 0.005.

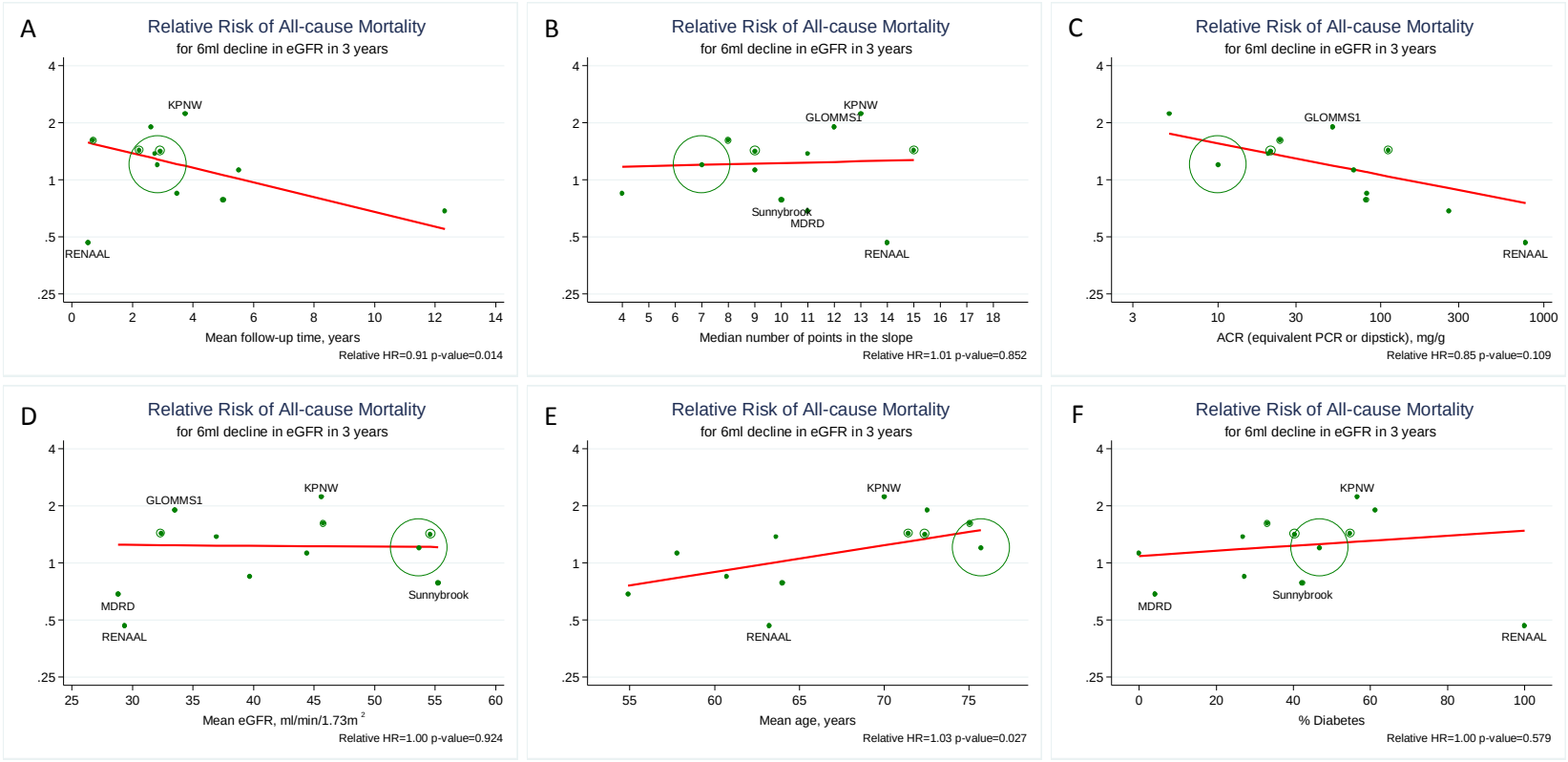
Supplemental Figure 1. Adjusted hazard ratios (HR) for all-cause mortality (ACM) by annualized estimated glomerular filtration rate (eGFR) slope subsequent to 1- and 2-year antecedent periods. Results for analyses using one (A, B) and two-year (C, D) antecedent periods are shown in panels A, B and C, D, respectively, for CKD (A, C) and other (B, D) cohorts: other - general population and CV high-risk cohorts; CKD – chronic kidney disease cohorts. Histograms underneath the risk curves indicate that distribution of the cohorts within each eGFR slope category. HRs for ACM were adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and last eGFR



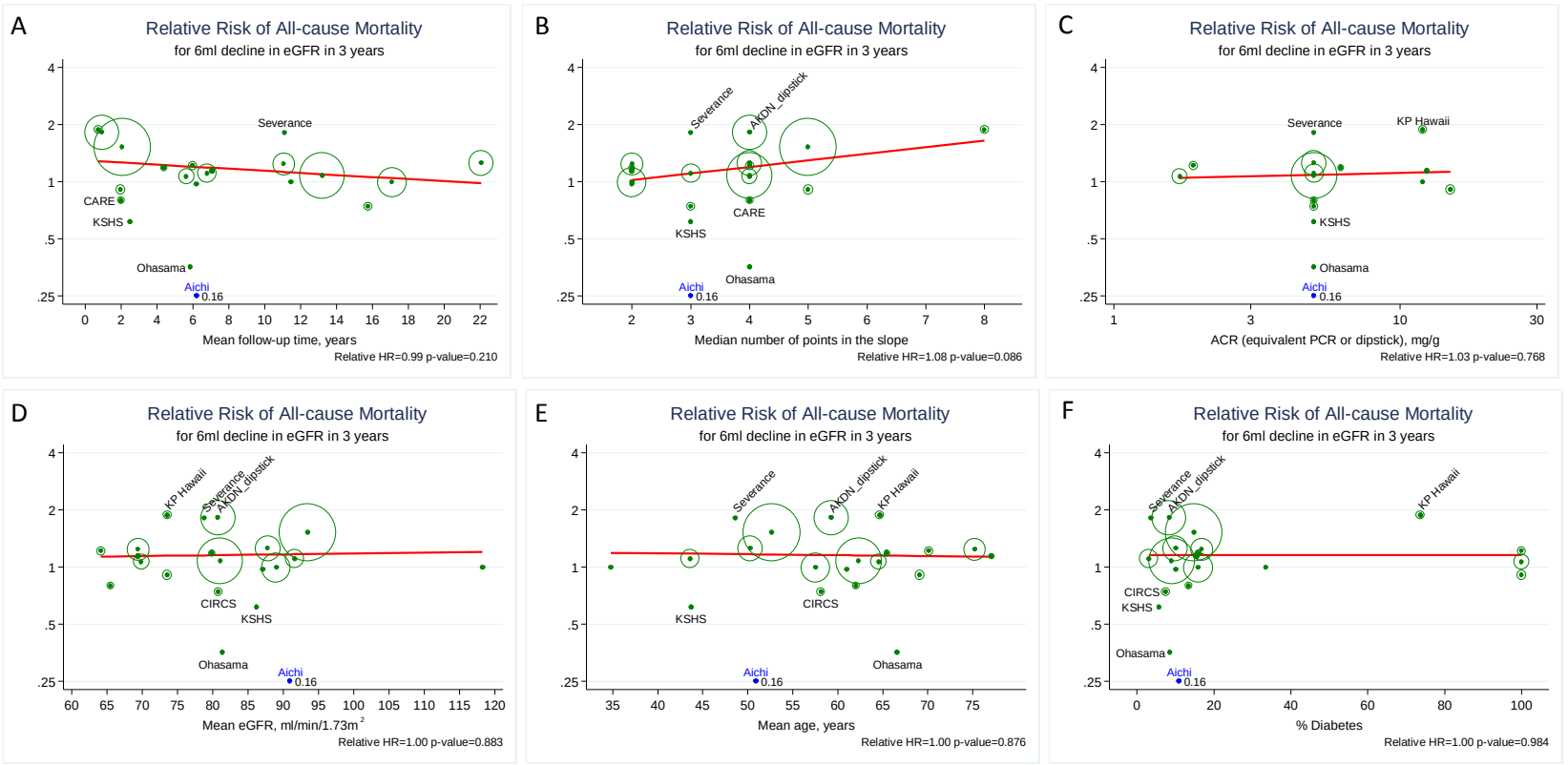
Supplemental Figure 2. Interaction model for albuminuria and eGFR slope for both other (general/high risk) and CKD cohorts. Adjusted hazard ratios (HR) for all-cause mortality (ACM) by annualized estimated glomerular filtration rate (eGFR) slope during a 3-year antecedent period are shown for three different albuminuria strata (macro- [severely increased], micro- [moderately increased], and no albuminuria) for both CKD (A) and other (B) cohorts: general/high risk - general population and CV high-risk cohorts; CKD – chronic kidney disease cohorts. HRs for ACM were adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and last eGFR. Kernel density plots indicate the distribution by eGFR slope and albuminuria strata for both CKD (C) and other (D) cohorts.



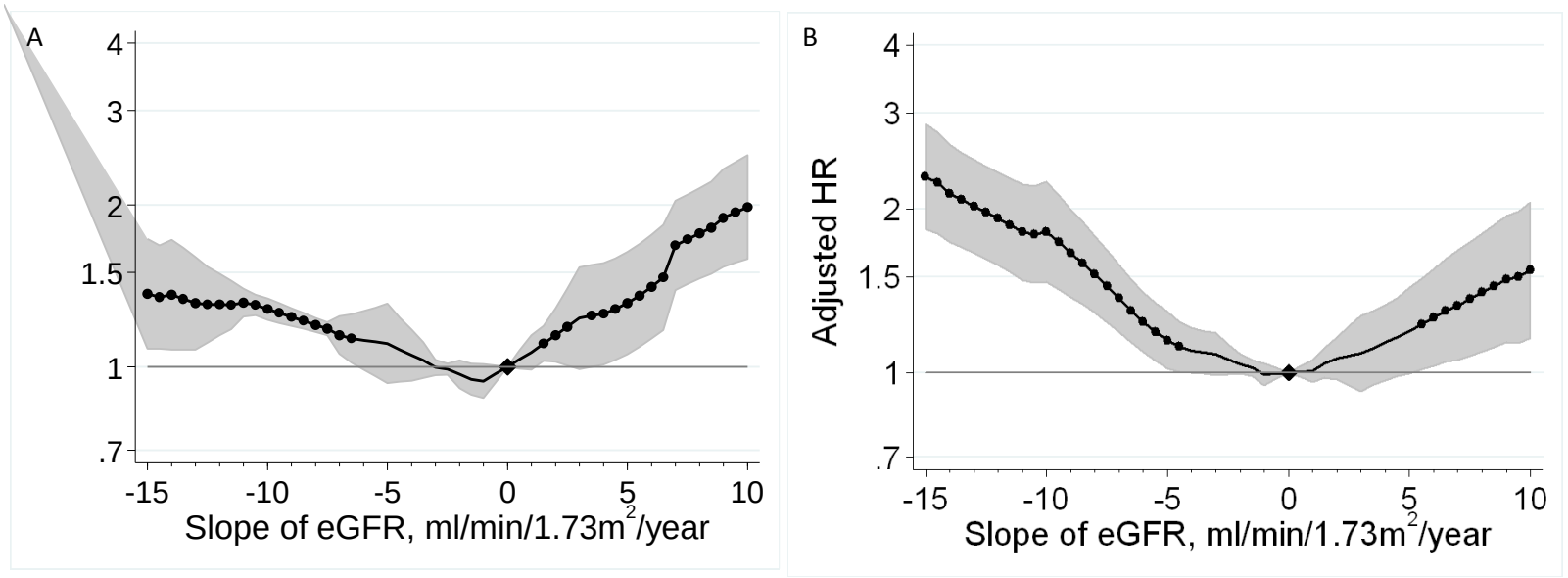
Supplemental Figure 3. Meta-regression among CKD cohorts – **A.** mean follow-up time, **B.** median number of creatinine measurements, **C.** median ACR, **D**. Baseline eGFR, **E.** mean age, **F.** percent with diabetes. adjusted hazard ratios (HR) for all-cause mortality (ACM) subsequent to an estimated glomerular filtration rate (eGFR) slope of -6ml/min/1.73m^2/yr during a 3-year antecedent period are shown. HRs for ACM were adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and last eGFR. ACR – urine albumin to creatinine ratio in mg/g. Sizes of green circles are proportional to the inverse of the variance of the log hazard ratio. Cohort names listed when the distance is more than 30% from the regression line.



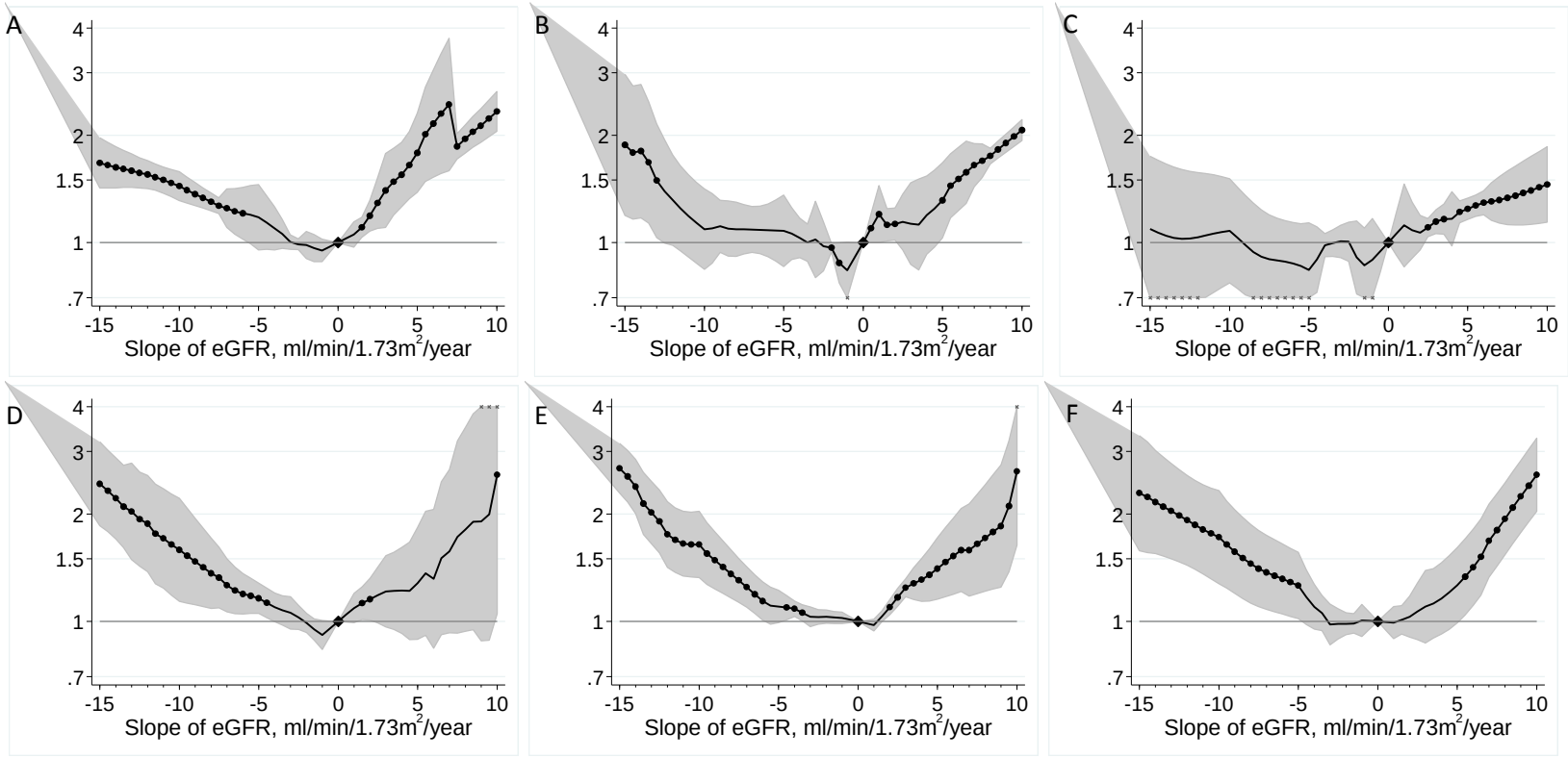
Supplemental Figure 4. Meta-regression among other (general population/high risk) cohorts – **A.** mean follow-up time, **B.** median number of creatinine measurements, **C.** median ACR, **D**. Baseline eGFR, **E.** mean age, **F.** percent with diabetes. Adjusted hazard ratios (HR) for all-cause mortality (ACM) subsequent to an estimated glomerular filtration rate (eGFR) slope of -6ml/min/1.73m^2/yr during a 3-year antecedent period are shown. HRs for ACM were adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and last eGFR. ACR – urine albumin to creatinine ratio in mg/g. Sizes of green circles are proportional to the inverse of the variance of the log hazard ratio. Cohort names listed when the distance is more than 30% from the regression line. Effect size out of the range of y-axis listed as blue text.



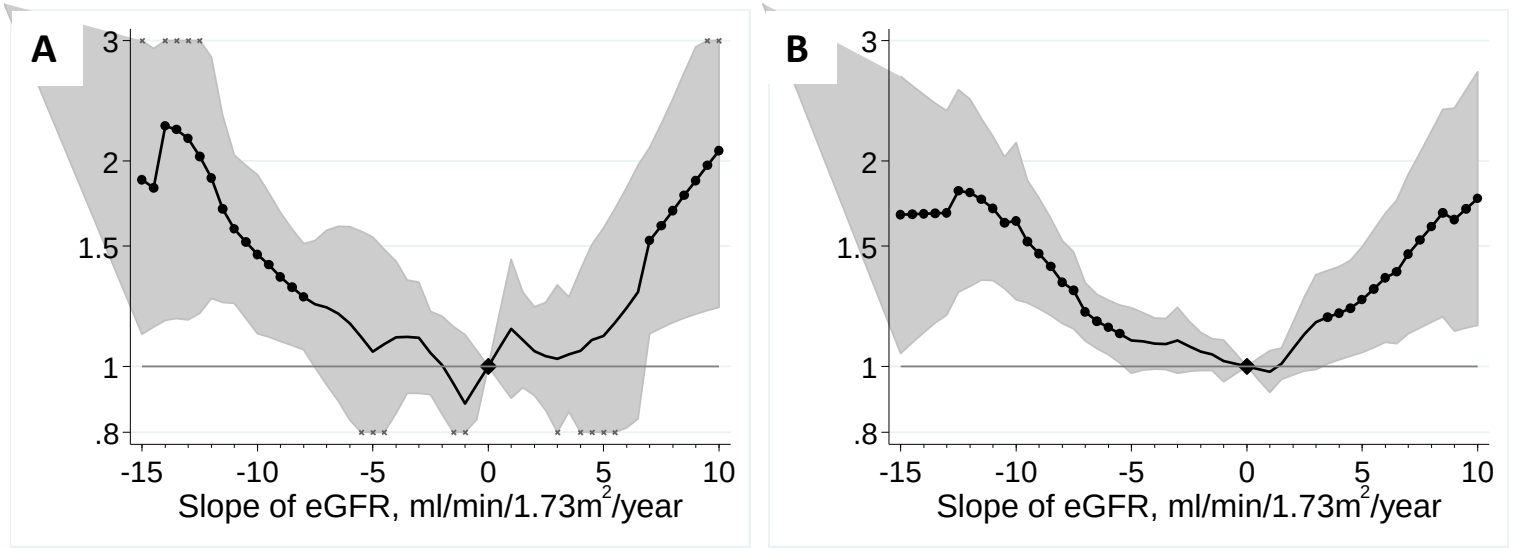
Supplemental Figure 5. Adjusted hazard ratios (HR) for all-cause mortality (ACM) subsequent to an estimated glomerular filtration (eGFR) slope during a 3-year antecedent period including root mean squared error (RMSE) as a covariate and by cohort type (CKD, A vs. other - general/high risk, B) – The HRs associated with eGFR slope for ACM were adjusted for age, sex, race (blacks vs. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, RMSE and baseline (last) eGFR. general/high risk - general population and high cardiovascular risk cohorts; CKD - chronic kidney disease cohorts.



Supplemental Figure 6. Adjusted hazard ratios (HR) for all-cause mortality (ACM) subsequent to an estimated glomerular filtration (eGFR) slope during a 3-year antecedent period stratified by root mean squared error (RMSE) (RMSE<5, A, D; RMSE 5-10, B, E; RMSE>10, C, F) and by cohort type (CKD, A-C vs. other - general/high risk, D-E) – The HRs associated with eGFR slope for ACM were adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and baseline (last) eGFR. general/high risk - general population and high cardiovascular risk cohorts; CKD - chronic kidney disease cohorts.



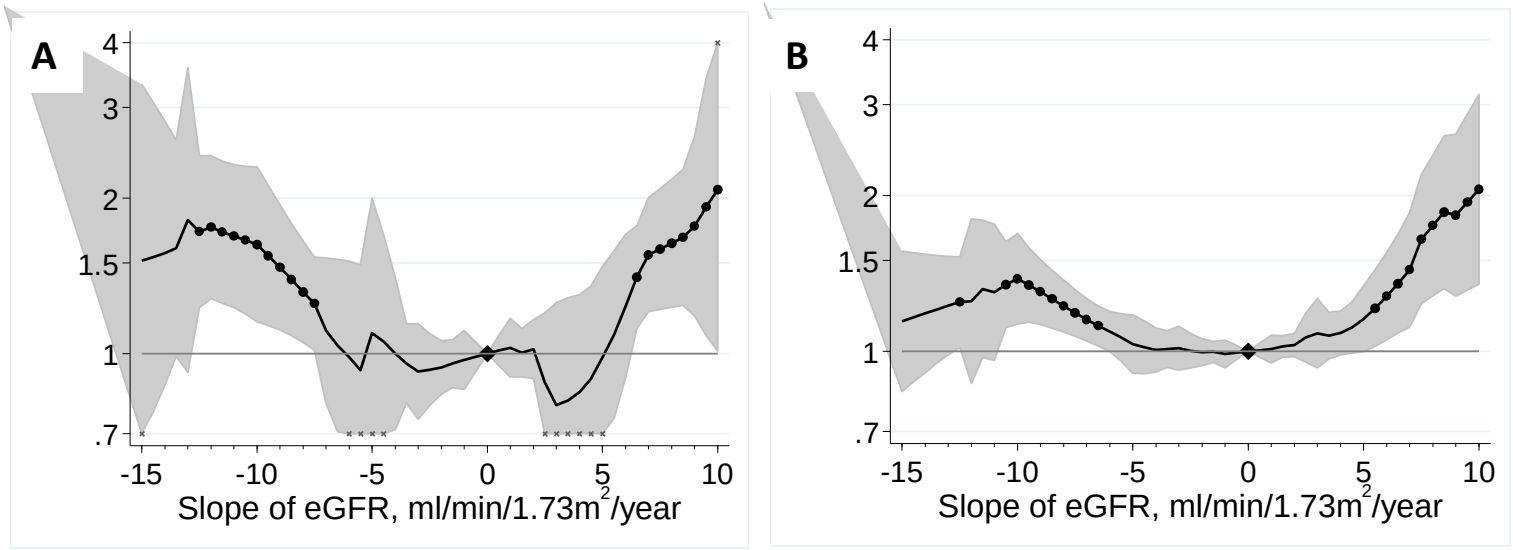
Supplemental Figure 7. Effect of weight loss on the analytical results – Adjusted hazard ratios (HR) for all-cause mortality (ACM) subsequent to an estimated glomerular filtration rate (eGFR) slope during a 3-year antecedent period are shown after exclusion of subjects with a weight loss of >= 2.0 kg over the antecedent period for both CKD or (**A)** or other - general/high risk (**B**) cohorts. Multiple logistic regression analysis for the adjusted odds-ratios associated with weight changes over the antecedent period for either an eGFR slope less than – 5 or greater than +5 ml/min/1.73m^2/yr is shown in Panel **C**. **–** The HRs associated with eGFR slope for ACM were adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and baseline (last) eGFR. CKD - chronic kidney disease cohorts; Other - general population and high cardiovascular risk cohorts;.



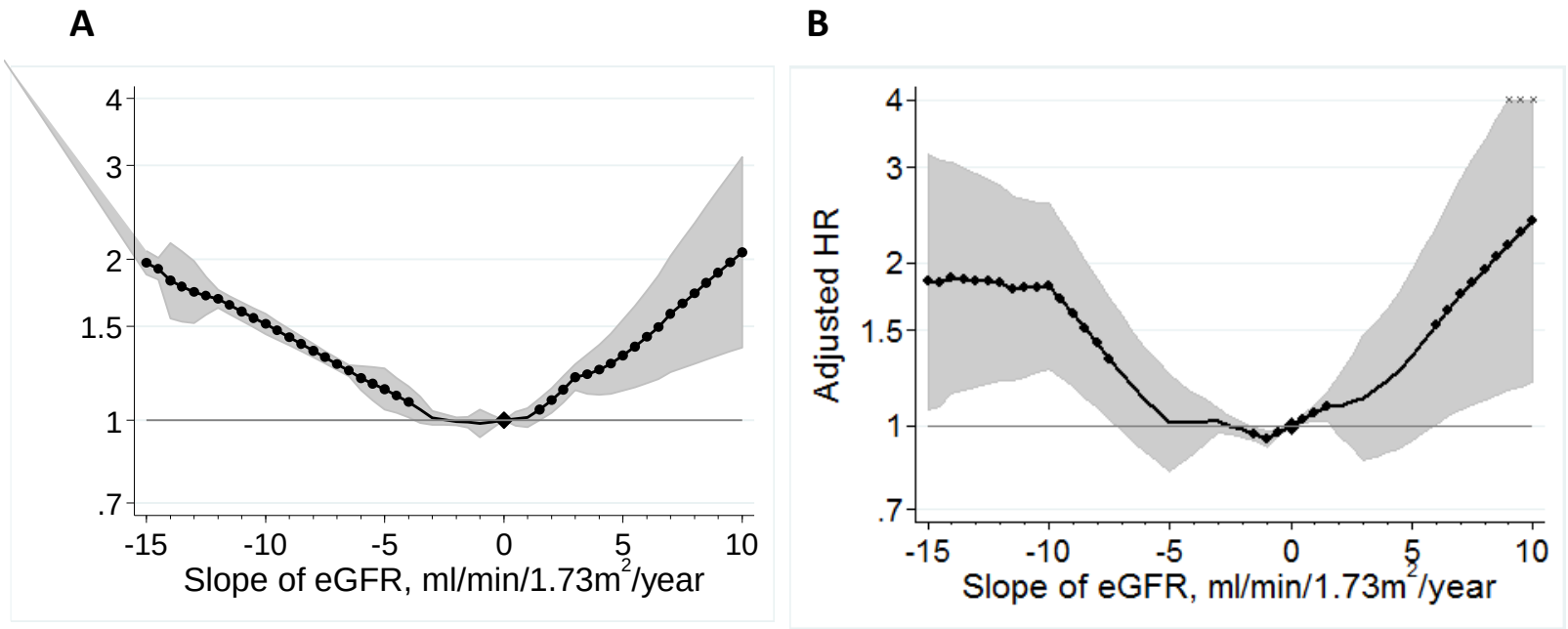
C

Variables	slope <-5ml/y vs. slope ≥-5ml/y to ≤5ml/y		slope >5ml/y vs. slope ≥-5ml/y to ≤5ml/y	
	CKD Cohorts	Other - general/high risk Cohorts	CKD Cohorts	Other - general/high risk cohorts
Body weight loss >2 kg	2.00 (1.84, 2.18)	1.12 (0.76, 1.67)	15.99 (14.48, 17.66)	1.97 (1.04, 3.72)
Body weight gain >2 kg	2.12 (0.27, 16.80)	1.91 (1.30, 2.80)	7.46 (6.61, 8.42)	1.00 (0.65, 1.54)

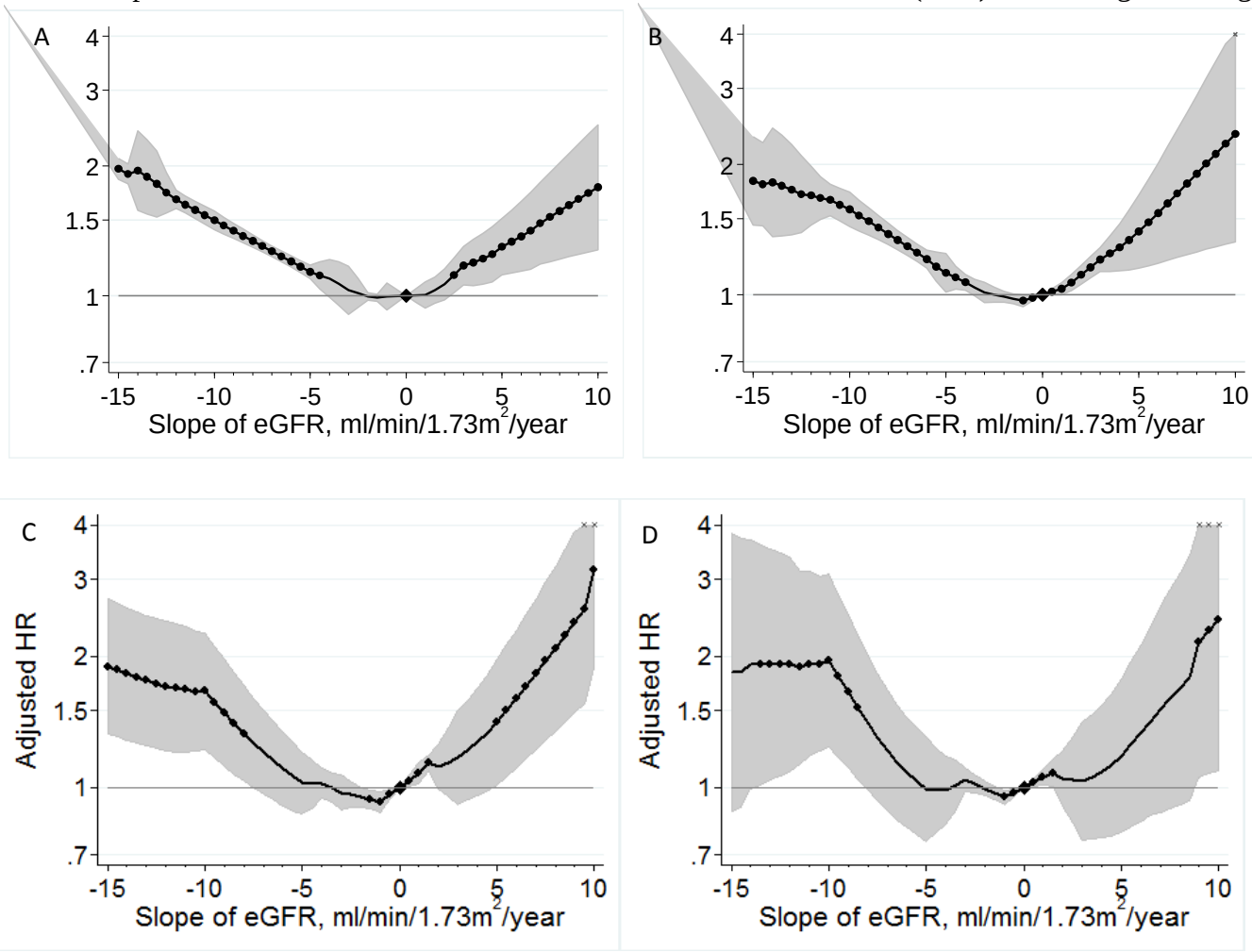
Supplemental Figure 8. Effect of diabetes status on the analytical results – Adjusted hazard ratios (HR) for all-cause mortality (ACM) subsequent to an estimated glomerular filtration rate (eGFR) slope during a 3-year antecedent period are shown after exclusion of subjects with diabetes for both CKD (**A)** or other - general/high risk (**B**) cohorts (among the 14 cohorts with available data). The HRs associated with eGFR slope for ACM were adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, history of CVD, and baseline (last) eGFR. general/high risk - general population and high cardiovascular risk cohorts; CKD - chronic kidney disease cohorts.



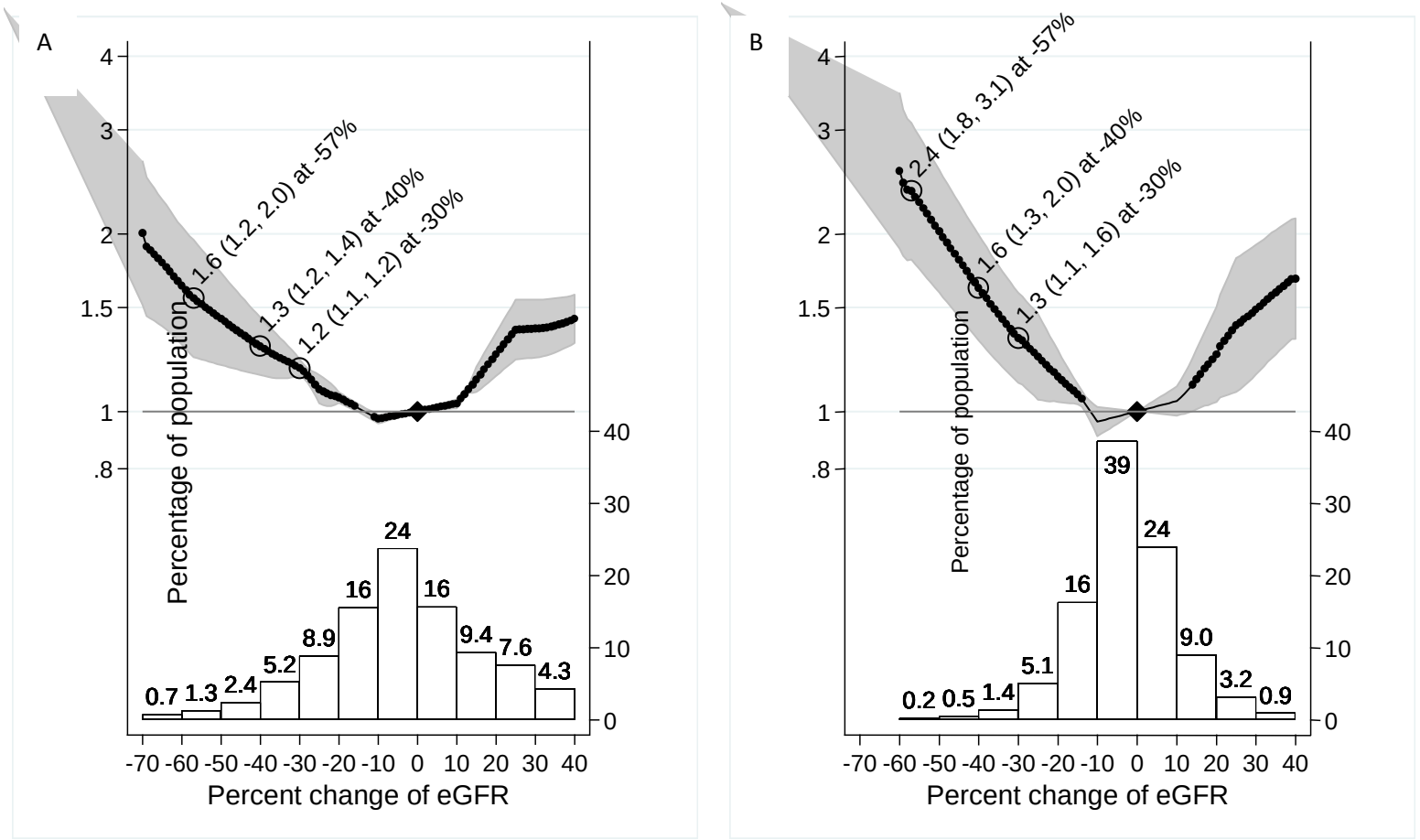
Supplemental Figure 9. Effect of renin-angiotensin system blockade inhibitor (RASi) use on the analytical results (adjustment) – Adjusted hazard ratios (HR) for all-cause mortality (ACM) subsequent to an estimated glomerular filtration rate (eGFR) slope during a 3-year antecedent period are shown after inclusion of RASi exposure within the antecedent period as a covariate in the Cox model are shown for both CKD (**A)** or other - general/high risk (**B**) cohorts.



Supplemental Figure 10. Effect of renin-angiotensin system blockade inhibitor (RASi) use on the analytical results (stratification) – Adjusted hazard ratios (HR) for all-cause mortality (ACM) subsequent to an estimated glomerular filtration rate (eGFR) slope during a 3-year antecedent period are shown for persons with **(A, C)** and without **(B, D)** RASi exposure within the antecedent period as a covariate in the Cox model are shown for both CKD (**A, B)** or other - general/high risk (**C, D**) cohorts



Supplemental Figure 11. Adjusted hazard ratios (HR) for all-cause mortality (ACM) by percent change in estimated glomerular filtration rate (eGFR) subsequent to 3-year antecedent periods. Results for CKD **(A)** and other – general population/high risk **(B)** cohorts: general/high risk - general population and CV high-risk cohorts; CKD – chronic kidney disease cohorts. Histograms underneath the risk curves indicate that distribution of the cohorts within each percent change in eGFR category. HRs for ACM were adjusted for age, sex, race (blacks *vs*. non-blacks), systolic blood pressure, total cholesterol, diabetes, history of CVD, and last eGFR



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