Supplemental material

Supplemental Table S1. Definition of study covariates.

Comorbidities	**ICD-10 codes**	**ATC codes**
Cardiovascular disease*	I200, I21-I22, I201, I208, I209, I24, I25, I110, I130, I132, I50, I60-I64, I693, I698, I694, I65-I69, G45 (excl G454), G46, I44-I49, I70, I72, I73	
Hypertension	I10-I15	
Diabetes mellitus	E10-E14	A10
Cancer	C00-C43, C45-C97	
Liver disease	B18, I982, K70-K77	

* Cardiovascular disease was defined as a composite of myocardial infarction, other ischemic heart disease, heart failure, stroke, other cerebrovascular disease, arrhythmia and peripheral vascular disease.

Supplemental Table S2. P_{10} of different CKD-EPI eGFR equations stratified by the magnitude and direction of the discordance between $eGFR_{cr}$ and $eGFR_{cys}$.

	$eGFR_{cys}$<$eGFR_{cr}$*	**$eGFR_{cys}$ ≈ $eGFR_{cr}$***	**$eGFR_{cys}$>$eGFR_{cr}$***
	$eGFR_{cys}$ >20% lower than $eGFR_{cr}$	$eGFR_{cys}$ within 20% of $eGFR_{cr}$	$eGFR_{cys}$ >20% higher than $eGFR_{cr}$
$eGFR_{cr}$	15.8 (14.7 to 16.9)	42.4 (40.9 to 43.9)	34.1 (30.6 to 37.6)
$eGFR_{cys}$	24.0 (22.8 to 25.3)	46.7 (45.2 to 48.2)	25.9 (22.8 to 29.2)
$eGFR_{cr\text{-}cys}$	40.2 (38.8 to 41.7)	43.2 (41.8 to 44.6)	43.9 (40.3 to 47.4)

Cr = creatinine; cys = cystatin C; eGFR = estimated glomerular filtration rate; mGFR = measured glomerular filtration rate.

* A measurement fell within $eGFR_{cys}$<$eGFR_{cr}$ when $eGFR_{cys}$ was more than 20% *lower* than $eGFR_{cr}$; $eGFR_{cys}$≈$eGFR_{cr}$ if the difference between eGFR values was within 20% of $eGFR_{cr}$; and within $eGFR_{cys}$>$eGFR_{cr}$ when $eGFR_{cys}$ was more than 20% *higher* than $eGFR_{cr}$

P_{10} was defined as the percentage of individuals with estimated GFRs within 10% of measured GFR (95% confidence interval).

eGFR was calculated using the CKD-EPI 2012 and 2021 equations.

Supplemental Table S3. Agreement between mGFR and eGFR categories stratified by discordance between $eGFR_{cr}$ and $eGFR_{cys}$: given a certain eGFR category, what is the probability an individual is in a certain mGFR category.

	$eGFR_{cys}$<$eGFR_{cr}$ $eGFR_{cys}$ >20% lower than $eGFR_{cr}$						
	mGFR, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cr}$, mL/min/1.73m²							
≥90	**372 (27.5)**	834 (61.7)	125 (9.2)	16 (1.2)	3 (0.2)	2 (0.1)	1352 (30.3)
60-89	7 (0.5)	**561 (39.8)**	620 (43.9)	198 (14)	23 (1.6)	2 (0.1)	1411 (31.6)
45-59		14 (1.9)	**232 (30.8)**	403 (53.5)	99 (13.1)	5 (0.7)	753 (16.9)
30-44		3 (0.5)	22 (4)	**253 (45.8)**	259 (46.8)	16 (2.9)	553 (12.4)
15-29			2 (0.6)	26 (7.3)	**252 (71)**	75 (21.1)	355 (8)
<15				1 (2.4)	11 (26.8)	**29 (70.7)**	41 (0.9)
Total	379 (8.5)	1412 (31.6)	1001 (22.4)	897 (20.1)	647 (14.5)	129 (2.9)	4465 (100)
$eGFR_{cys}$, mL/min/1.73m²							
≥90	**59 (73.8)**	20 (25)	1 (1.2)				80 (1.8)
60-89	267 (27.6)	**645 (66.7)**	51 (5.3)	2 (0.2)	2 (0.2)		967 (21.7)
45-59	43 (4.5)	531 (55.1)	**346 (35.9)**	44 (4.6)			964 (21.6)
30-44	7 (0.6)	193 (16.5)	505 (43.1)	**436 (37.2)**	29 (2.5)	2 (0.2)	1172 (26.2)
15-29	3 (0.3)	23 (2.3)	90 (9.1)	400 (40.6)	**441 (44.8)**	28 (2.8)	985 (22.1)
<15			8 (2.7)	15 (5.1)	175 (58.9)	**99 (33.3)**	297 (6.7)
$eGFR_{crea-cys}$, mL/min/1.73m²							
≥90	**212 (57.1)**	157 (42.3)	2 (0.5)				371 (8.3)
60-89	159 (10.7)	**1025 (68.8)**	283 (19)	20 (1.3)	3 (0.2)		1490 (33.4)
45-59	7 (0.8)	207 (22.2)	**506 (54.4)**	208 (22.3)	2 (0.2)	1 (0.1)	931 (20.9)
30-44	1 (0.1)	21 (2.4)	195 (22.3)	**507 (58)**	143 (16.4)	7 (0.8)	874 (19.6)
15-29		2 (0.3)	15 (2.3)	157 (24)	**430 (65.8)**	49 (7.5)	653 (14.6)
<15				5 (3.4)	69 (47.3)	**72 (49.3)**	146 (3.3)
	$eGFR_{cys}$ ≈ $eGFR_{cr}$ $eGFR_{cys}$ within 20% of $eGFR_{cr}$						
	mGFR, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cr}$, mL/min/1.73m²							
≥90	**1110 (64)**	615 (35.4)	8 (0.5)		2 (0.1)		1735 (41.1)
60-89	101 (8.3)	**871 (72)**	214 (17.7)	23 (1.9)	1 (0.1)		1210 (28.6)
45-59		89 (16.6)	**313 (58.3)**	134 (25)	1 (0.2)		537 (12.7)
30-44		4 (1.1)	67 (19.2)	**220 (63)**	57 (16.3)	1 (0.3)	349 (8.3)
15-29				31 (11.5)	**209 (77.7)**	29 (10.8)	269 (6.4)
<15				1 (0.8)	38 (30.2)	**87 (69)**	126 (3)
Total	1211 (28.7)	1579 (37.4)	602 (14.2)	409 (9.7)	308 (7.3)	117 (2.8)	4226 (100)
$eGFR_{cys}$, mL/min/1.73m²							
≥90	**1036 (69)**	462 (30.8)	2 (0.1)		1 (0.1)		1501 (35.5)
60-89	175 (13.5)	**971 (75)**	136 (10.5)	11 (0.8)	2 (0.2)		1295 (30.6)
45-59		140 (23.9)	**352 (60.1)**	94 (16)			586 (13.9)
30-44		6 (1.5)	111 (27.8)	**247 (61.9)**	34 (8.5)	1 (0.3)	399 (9.4)
15-29			1 (0.3)	56 (18.1)	**227 (73.5)**	25 (8.1)	309 (7.3)
<15				1 (0.7)	44 (32.4)	**91 (66.9)**	136 (3.2)
$eGFR_{crea-cys}$, mL/min/1.73m²							

≥90	**1139 (64.2)**	629 (35.4)	5 (0.3)		2 (0.1)		1775 (42)
60-89	72 (6.4)	**863 (76.2)**	182 (16.1)	15 (1.3)	1 (0.1)		1133 (26.8)
45-59		83 (15.4)	**339 (63)**	116 (21.6)			538 (12.7)
30-44		4 (1.1)	76 (20.9)	**238 (65.6)**	44 (12.1)	1 (0.3)	363 (8.6)
15-29				39 (13.8)	**219 (77.7)**	24 (8.5)	282 (6.7)
<15				1 (0.7)	42 (31.1)	**92 (68.1)**	135 (3.2)

	$eGFR_{cys}$>$eGFR_{cr}$ $eGFR_{cys}$ >20% higher than $eGFR_{cr}$						
	mGFR, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cr}$, mL/min/1.73m²							
≥90	**49 (69)**	22 (31)					71 (10)
60-89	115 (38.2)	**178 (59.1)**	6 (2)	2 (0.7)			301 (42.2)
45-59	1 (1.1)	51 (58)	**34 (38.6)**	1 (1.1)		1 (1.1)	88 (12.3)
30-44		3 (4.7)	31 (48.4)	**27 (42.2)**	3 (4.7)		64 (9)
15-29			3 (6.2)	8 (16.7)	**37 (77.1)**		48 (6.7)
<15					25 (17.7)	**116 (82.3)**	141 (19.8)
Total	165 (23.1)	254 (35.6)	74 (10.4)	38 (5.3)	65 (9.1)	117 (16.4)	713 (100)
$eGFR_{cys}$, mL/min/1.73m²							
≥90	**160 (51.3)**	149 (47.8)	2 (0.6)			1 (0.3)	312 (43.8)
60-89	5 (3.4)	**102 (69.9)**	34 (23.3)	4 (2.7)	1 (0.7)		146 (20.5)
45-59		3 (6.1)	**32 (65.3)**	13 (26.5)	1 (2)		49 (6.9)
30-44			6 (15.8)	**20 (52.6)**	10 (26.3)	2 (5.3)	38 (5.3)
15-29				1 (1.3)	**49 (62.8)**	28 (35.9)	78 (10.9)
<15					4 (4.4)	**86 (95.6)**	90 (12.6)
$eGFR_{crea-cys}$, mL/min/1.73m²							
≥90	**143 (59.6)**	97 (40.4)					240 (33.7)
60-89	22 (11.3)	**149 (76.8)**	19 (9.8)	3 (1.5)		1 (0.5)	194 (27.2)
45-59		8 (14.3)	**42 (75)**	5 (8.9)	1 (1.8)		56 (7.9)
30-44			12 (30)	**24 (60)**	4 (10)		40 (5.6)
15-29			1 (1.7)	6 (10)	**46 (76.7)**	7 (11.7)	60 (8.4)
<15					14 (11.4)	**109 (88.6)**	123 (17.3)

Percentages add up to 100% from left to right. Empty cells denote that there were no individuals in that category.

Supplemental Table S4. Agreement between mGFR and eGFR categories stratified by discordance between $eGFR_{cr}$ and $eGFR_{cys}$: given a certain mGFR category, what is the probability an individual is in a certain eGFR category.

	$eGFR_{cys}$<$eGFR_{cr}$ $eGFR_{cys}$ >20% lower than $eGFR_{cr}$						
	mGFR, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cr}$, mL/min/1.73m²							
≥90	**372 (98.2)**	834 (59.1)	125 (12.5)	16 (1.8)	3 (0.5)	2 (1.6)	1352 (30.3)
60-89	7 (1.8)	**561 (39.7)**	620 (61.9)	198 (22.1)	23 (3.6)	2 (1.6)	1411 (31.6)
45-59		14 (1)	**232 (23.2)**	403 (44.9)	99 (15.3)	5 (3.9)	753 (16.9)
30-44		3 (0.2)	22 (2.2)	**253 (28.2)**	259 (40)	16 (12.4)	553 (12.4)
15-29			2 (0.2)	26 (2.9)	**252 (38.9)**	75 (58.1)	355 (8)
<15				1 (0.1)	11 (1.7)	**29 (22.5)**	41 (0.9)
Total	379 (8.5)	1412 (31.6)	1001 (22.4)	897 (20.1)	647 (14.5)	129 (2.9)	4465 (100)
$eGFR_{cys}$, mL/min/1.73m²							
≥90	**59 (15.6)**	20 (1.4)	1 (0.1)				80 (1.8)
60-89	267 (70.4)	**645 (45.7)**	51 (5.1)	2 (0.2)	2 (0.3)		967 (21.7)
45-59	43 (11.3)	531 (37.6)	**346 (34.6)**	44 (4.9)			964 (21.6)
30-44	7 (1.8)	193 (13.7)	505 (50.4)	**436 (48.6)**	29 (4.5)	2 (1.6)	1172 (26.2)
15-29	3 (0.8)	23 (1.6)	90 (9)	400 (44.6)	**441 (68.2)**	28 (21.7)	985 (22.1)
<15			8 (0.8)	15 (1.7)	175 (27)	**99 (76.7)**	297 (6.7)
$eGFR_{crea-cys}$, mL/min/1.73m²							
≥90	**212 (55.9)**	157 (11.1)	2 (0.2)				371 (8.3)
60-89	159 (42)	**1025 (72.6)**	283 (28.3)	20 (2.2)	3 (0.5)		1490 (33.4)
45-59	7 (1.8)	207 (14.7)	**506 (50.5)**	208 (23.2)	2 (0.3)	1 (0.8)	931 (20.9)
30-44	1 (0.3)	21 (1.5)	195 (19.5)	**507 (56.5)**	143 (22.1)	7 (5.4)	874 (19.6)
15-29		2 (0.1)	15 (1.5)	157 (17.5)	**430 (66.5)**	49 (38)	653 (14.6)
<15				5 (0.6)	69 (10.7)	**72 (55.8)**	146 (3.3)
	$eGFR_{cys}$ ≈ $eGFR_{cr}$ $eGFR_{cys}$ within 20% of $eGFR_{cr}$						
	mGFR, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cr}$, mL/min/1.73m²							
≥90	**1110 (91.7)**	615 (38.9)	8 (1.3)		2 (0.6)		1735 (41.1)
60-89	101 (8.3)	**871 (55.2)**	214 (35.5)	23 (5.6)	1 (0.3)		1210 (28.6)
45-59		89 (5.6)	**313 (52)**	134 (32.8)	1 (0.3)		537 (12.7)
30-44		4 (0.3)	67 (11.1)	**220 (53.8)**	57 (18.5)	1 (0.9)	349 (8.3)
15-29				31 (7.6)	**209 (67.9)**	29 (24.8)	269 (6.4)
<15				1 (0.2)	38 (12.3)	**87 (74.4)**	126 (3)
Total	1211 (28.7)	1579 (37.4)	602 (14.2)	409 (9.7)	308 (7.3)	117 (2.8)	4226 (100)
$eGFR_{cys}$, mL/min/1.73m²							
≥90	**1036 (85.5)**	462 (29.3)	2 (0.3)		1 (0.3)		1501 (35.5)
60-89	175 (14.5)	**971 (61.5)**	136 (22.6)	11 (2.7)	2 (0.6)		1295 (30.6)
45-59		140 (8.9)	**352 (58.5)**	94 (23)			586 (13.9)
30-44		6 (0.4)	111 (18.4)	**247 (60.4)**	34 (11)	1 (0.9)	399 (9.4)
15-29			1 (0.2)	56 (13.7)	**227 (73.7)**	25 (21.4)	309 (7.3)
<15				1 (0.2)	44 (14.3)	**91 (77.8)**	136 (3.2)
$eGFR_{crea-cys}$, mL/min/1.73m²							

≥90	**1139 (94.1)**	629 (39.8)	5 (0.8)		2 (0.6)		1775 (42)
60-89	72 (5.9)	**863 (54.7)**	182 (30.2)	15 (3.7)	1 (0.3)		1133 (26.8)
45-59		83 (5.3)	**339 (56.3)**	116 (28.4)			538 (12.7)
30-44		4 (0.3)	76 (12.6)	**238 (58.2)**	44 (14.3)	1 (0.9)	363 (8.6)
15-29				39 (9.5)	**219 (71.1)**	24 (20.5)	282 (6.7)
<15				1 (0.2)	42 (13.6)	**92 (78.6)**	135 (3.2)

	$eGFR_{cys}$>$eGFR_{cr}$ $eGFR_{cys}$ >20% higher than $eGFR_{cr}$						
	mGFR, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cr}$, mL/min/1.73m²							
≥90	**49 (29.7)**	22 (8.7)					71 (10)
60-89	115 (69.7)	**178 (70.1)**	6 (8.1)	2 (5.3)			301 (42.2)
45-59	1 (0.6)	51 (20.1)	**34 (45.9)**	1 (2.6)		1 (0.9)	88 (12.3)
30-44		3 (1.2)	31 (41.9)	**27 (71.1)**	3 (4.6)		64 (9)
15-29			3 (4.1)	8 (21.1)	**37 (56.9)**		48 (6.7)
<15					25 (38.5)	**116 (99.1)**	141 (19.8)
Total	165 (23.1)	254 (35.6)	74 (10.4)	38 (5.3)	65 (9.1)	117 (16.4)	713 (100)
$eGFR_{cys}$, mL/min/1.73m²							
≥90	**160 (97)**	149 (58.7)	2 (2.7)			1 (0.9)	312 (43.8)
60-89	5 (3)	**102 (40.2)**	34 (45.9)	4 (10.5)	1 (1.5)		146 (20.5)
45-59		3 (1.2)	**32 (43.2)**	13 (34.2)	1 (1.5)		49 (6.9)
30-44			6 (8.1)	**20 (52.6)**	10 (15.4)	2 (1.7)	38 (5.3)
15-29				1 (2.6)	**49 (75.4)**	28 (23.9)	78 (10.9)
<15					4 (6.2)	**86 (73.5)**	90 (12.6)
$eGFR_{crea-cys}$, mL/min/1.73m²							
≥90	**143 (86.7)**	97 (38.2)					240 (33.7)
60-89	22 (13.3)	**149 (58.7)**	19 (25.7)	3 (7.9)		1 (0.9)	194 (27.2)
45-59		8 (3.1)	**42 (56.8)**	5 (13.2)	1 (1.5)		56 (7.9)
30-44			12 (16.2)	**24 (63.2)**	4 (6.2)		40 (5.6)
15-29			1 (1.4)	6 (15.8)	**46 (70.8)**	7 (6)	60 (8.4)
<15					14 (21.5)	**109 (93.2)**	123 (17.3)

Percentages add up to 100% from top to bottom. Empty cells denote that there were no individuals in that category.

Supplemental Table S5. Correct and incorrect reclassification from GFR categories based on $eGFR_{cr}$ or $eGFR_{cys}$ to categories based on $eGFR_{cr-cys}$, in patients with $eGFR_{cys}$<$eGFR_{cr}$ and $eGFR_{cys}$>$eGFR_{cr}$.

	$eGFR_{cys}$<$eGFR_{cr}$ $eGFR_{cys}$ >20% lower than $eGFR_{cr}$						
	$eGFR_{crea-cys}$, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cr}$, mL/min/1.73m²							
≥90							
Total	371 (27.4)	**904 (66.9)**	**69 (5.1)**	**7 (0.5)**	**1 (0.1)**		1352 (30.3)
Correctly (re)classified	212 (24)	**645 (73)**	**25 (2.8)**	**2 (0.2)**	**0 (0)**		884 (32.1)
Incorrectly (re)classified	159 (34)	**259 (55.3)**	**44 (9.4)**	**5 (1.1)**	**1 (0.2)**		468 (27.3)
60-89							
Total		586 (41.5)	**682 (48.3)**	**136 (9.6)**	**7 (0.5)**		1411 (31.6)
Correctly (re)classified		380 (46.9)	**378 (46.7)**	**49 (6)**	**3 (0.4)**		810 (29.4)
Incorrectly (re)classified		206 (34.3)	**304 (50.6)**	**87 (14.5)**	**4 (0.7)**		601 (35.1)
45-59							
Total			180 (23.9)	**533 (70.8)**	**40 (5.3)**		753 (16.9)
Correctly (re)classified			103 (23.1)	**323 (72.4)**	**20 (4.5)**		446 (16.2)
Incorrectly (re)classified			77 (25.1)	**210 (68.4)**	**20 (6.5)**		307 (17.9)
30-44							
Total				198 (35.8)	**354 (64)**	**1 (0.2)**	553 (12.4)
Correctly (re)classified				133 (38.6)	**212 (61.4)**	**0 (0)**	345 (12.5)
Incorrectly (re)classified				65 (31.2)	**142 (68.3)**	**1 (0.5)**	208 (12.1)
15-29							
Total					251 (70.7)	**104 (29.3)**	355 (8)
Correctly (re)classified					195 (81.9)	**43 (18.1)**	238 (8.6)
Incorrectly (re)classified					56 (47.9)	**61 (52.1)**	117 (6.8)
<15							
Total						41 (100)	41 (0.9)
Correctly (re)classified						29 (100)	29 (1.1)
Incorrectly (re)classified						12 (100)	12 (0.07)
Total							
Total	371 (8.3)	1490 (33.4)	931 (20.9)	874 (19.6)	653 (14.6)	146 (3.3)	4465 (100)
Correctly (re)classified	212 (7.7)	1025 (37.2)	506 (18.4)	507 (18.4)	430 (15.6)	72 (2.6)	2752 (100)
Incorrectly (re)classified	159 (9.3)	465 (27.1)	425 (24.8)	367 (21.4)	223 (13.0)	74 (4.3)	1713 (100)

	$eGFR_{cys}$>$eGFR_{cr}$ $eGFR_{cys}$ >20% higher than $eGFR_{cr}$

	$eGFR_{crea-cys}$, mL/min/1.73m² (%)						
	≥90	60-89	45-59	30-44	15-29	<15	Total
$eGFR_{cr}$, mL/min/1.73m²							
≥90							
Total	71 (100)						71 (10)
Correctly (re)classified	49 (100)						49 (9.6)
Incorrectly (re)classified	22 (100)						22 (11.0)
60-89							
Total	**169 (56.1)**	132 (43.9)					301 (42.2)
Correctly (re)classified	**94 (47.7)**	103 (52.3)					197 (38.4)
Incorrectly (re)classified	**75 (72.1)**	29 (27.9)					104 (52.0)
45-59							
Total		**61 (69.3)**	27 (30.7)				88 (12.3)
Correctly (re)classified		**45 (68.2)**	21 (31.8)				66 (12.9)
Incorrectly (re)classified		**16 (72.7)**	6 (27.3)				22 (11.0)
30-44							
Total		**1 (1.6)**	**29 (45.3)**	34 (53.1)			64 (9)
Correctly (re)classified		**1 (2.3)**	**21 (47.7)**	22 (50)			44 (8.6)
Incorrectly (re)classified		**0 (0)**	**8 (40)**	12 (60)			20 (10.0)
15-29							
Total				**6 (12.5)**	42 (87.5)		48 (6.7)
Correctly (re)classified				**2 (5.4)**	35 (94.6)		37 (7.2)
Incorrectly (re)classified				**4 (36.4)**	7 (63.6)		11 (5.5)
<15							
Total					**18 (12.8)**	123 (87.2)	141 (19.8)
Correctly (re)classified					**11 (9.2)**	109 (90.8)	120 (23.4)
Incorrectly (re)classified					**7 (33.3)**	14 (66.7)	21 (10.5)
Total							
Total	240 (33.7)	194 (27.2)	56 (7.9)	40 (5.6)	60 (8.4)	123 (17.3)	713 (100)
Correctly (re)classified	143 (27.9)	149 (29.0)	42 (8.2)	24 (4.7)	46 (9.0)	109 (21.2)	513 (100)
Incorrectly (re)classified	97 (48.5)	45 (22.5)	14 (7.0)	16 (8.0)	14 (7.0)	14 (7.0)	200 (100)

Among individuals with $eGFR_{cys}$<$eGFR_{cr}$, using $eGFR_{cr-cys}$ instead of $eGFR_{cr}$ reclassified 2838/4465 (63.6%) individuals to a more severe eGFR category, of which 1700/4465 (38.1%) were correctly reclassified and 1138/4465 (25.5%) were incorrectly reclassified. Among individuals with $eGFR_{cys}$>$eGFR_{cr}$, using $eGFR_{cr-cys}$ instead of $eGFR_{cr}$ reclassified 284/713 (39.8%) individuals to a less severe eGFR category, of which 174/713 (24.4%) were correctly reclassified and 110/713 (15.4%) were incorrectly reclassified. Empty cells denote that there were no individuals in that particular eGFR category. Cells in bold show reclassified individuals.

	$eGFR_{cys}$<$eGFR_{cr}$ $eGFR_{cys}$ >20% lower than $eGFR_{cr}$						
	$eGFR_{crea-cys}$, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cys}$, mL/min/1.73m²							
≥90							
Total	80 (100)						80 (1.8)
Correctly (re)classified	59 (100)						59 (2.1)
Incorrectly (re)classified	21 (100)						21 (1.2)
60-89							
Total	**291 (30.1)**	676 (69.9)					967 (21.7)
Correctly (re)classified	**153 (23.1)**	508 (76.9)					661 (24.0)
Incorrectly (re)classified	**138 (45.1)**	168 (54.9)					306 (17.9)
45-59							
Total		**736 (76.3)**	228 (23.7)				964 (21.6)
Correctly (re)classified		**464 (78)**	131 (22)				595 (21.6)
Incorrectly (re)classified		**272 (73.7)**	97 (26.3)				369 (21.5)
30-44							
Total		**78 (6.7)**	**669 (57.1)**	425 (36.3)			1172 (26.2)
Correctly (re)classified		**53 (7.8)**	**363 (53.5)**	262 (38.6)			678 (24.6)
Incorrectly (re)classified		**25 (5.1)**	**306 (61.9)**	163 (33)			494 (28.8)
15-29							
Total			**34 (3.5)**	**448 (45.5)**	503 (51.1)		985 (22.1)
Correctly (re)classified			**12 (2.1)**	**245 (42.2)**	324 (55.8)		581 (21.1)
Incorrectly (re)classified			**22 (5.4)**	**203 (50.2)**	179 (44.3)		404 (23.6)
<15							
Total				**1 (0.3)**	**150 (50.5)**	146 (49.2)	297 (6.7)
Correctly (re)classified				**0 (0)**	**106 (59.6)**	72 (40.4)	178 (6.5)
Incorrectly (re)classified				**1 (0.8)**	**44 (37)**	74 (62.2)	119 (6.9)
Total							
Total	371 (8.3)	1490 (33.4)	931 (20.9)	874 (19.6)	653 (14.6)	146 (3.3)	4465 (100)
Correctly (re)classified	212 (7.7)	1025 (37.2)	506 (18.4)	507 (18.4)	430 (15.6)	72 (2.6)	2752 (100)
Incorrectly (re)classified	159 (9.3)	465 (27.1)	425 (24.8)	367 (21.4)	223 (13.0)	74 (4.3)	1713 (100)

	$eGFR_{cys}$>$eGFR_{cr}$ $eGFR_{cys}$ >20% higher than $eGFR_{cr}$						
	$eGFR_{crea-cys}$, mL/min/1.73m² (%)						
	≥90	**60-89**	**45-59**	**30-44**	**15-29**	**<15**	**Total**
$eGFR_{cys}$, mL/min/1.73m²							
≥90							
Total	240 (76.9)	**72 (23.1)**					312 (43.8)
Correctly (re)classified	143 (73.3)	**52 (26.7)**					195 (38.0)
Incorrectly (re)classified	97 (82.9)	**20 (17.1)**					117 (58.5)
60-89							
Total		122 (83.6)	**24 (16.4)**				146 (20.5)
Correctly (re)classified		97 (85.1)	**17 (14.9)**				114 (22.2)
Incorrectly (re)classified		25 (78.1)	**7 (21.9)**				32 (16.0)
45-59							
Total			32 (65.3)	**17 (34.7)**			49 (6.9)
Correctly (re)classified			25 (73.5)	**9 (26.5)**			34 (6.6)
Incorrectly (re)classified			7 (46.7)	**8 (53.3)**			15 (7.5)
30-44							
Total				23 (60.5)	**15 (39.5)**		38 (5.3)
Correctly (re)classified				15 (68.2)	**7 (31.8)**		22 (4.3)
Incorrectly (re)classified				8 (50)	**8 (50)**		16 (8.0)
15-29							
Total					45 (57.7)	**33 (42.3)**	78 (10.9)
Correctly (re)classified					39 (62.9)	**23 (37.1)**	62 (12.1)
Incorrectly (re)classified					6 (37.5)	**10 (62.5)**	16 (8.0)
<15							
Total						90 (100)	90 (12.6)
Correctly (re)classified						86 (100)	86 (16.8)
Incorrectly (re)classified						4 (100)	4 (2.0)
Total							
Total	240 (33.7)	194 (27.2)	56 (7.9)	40 (5.6)	60 (8.4)	123 (17.3)	713 (100)
Correctly (re)classified	143 (27.9)	149 (29.0)	42 (8.2)	24 (4.7)	46 (9.0)	109 (21.2)	513 (100)
Incorrectly (re)classified	97 (48.5)	45 (22.5)	14 (7.0)	16 (8.0)	14 (7.0)	14 (7.0)	200 (100)

Among individuals with $eGFR_{cys}$<$eGFR_{cr}$ using $eGFR_{cr-cys}$ instead of $eGFR_{cys}$ reclassified 2407/4465 (53.9%) to a less severe eGFR category, of which 1396/4465 (31.3%) were correctly reclassified and 1011/4465 (22.6%) were incorrectly reclassified. Among individuals with $eGFR_{cys}$>$eGFR_{cr}$, using $eGFR_{cr-cys}$ instead of $eGFR_{cys}$ reclassified 161/713 (22.6%) individuals to a more severe eGFR category, of which 108/713 (15.1%) were correctly reclassified and 53/713 (7.4%) were incorrectly reclassified. Empty cells denote that there were no individuals in that particular eGFR category. Empty cells denote that there were no individuals in that particular eGFR category. Cells in bold show reclassified individuals.

Supplemental Table S6. Bias, P_{30}, and correct classification of $eGFR_{cr}$, $eGFR_{cys}$ and $eGFR_{cr\text{-}cys}$, across subgroups stratified by discordance between $eGFR_{cr}$ and $eGFR_{cys}$.

	Age <65 (N = 5835)			**Age ≥65 years (N = 3569)**		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 2364)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 2916)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 555)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 2101)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 1310)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 158)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m²)	17.4 (16.5 to 18.2)	5.6 (4.9 to 6.1)	-5.5 (-7 to -4.3)	13.2 (12.6 to 13.8)	2.9 (2.3 to 3.3)	-3 (-3.7 to -2.2)
P_{30}	48.9 (46.9 to 50.9)	85.8 (84.5 to 87.1)	87.4 (84.5 to 90.1)	50.7 (48.6 to 52.8)	86.3 (84.4 to 88.1)	80.4 (74.1 to 86.6)
Correct classification	38.8 (36.9 to 40.8)	67.7 (65.9 to 69.3)	58.6 (54.5 to 62.6)	37.2 (35.1 to 39.2)	63.9 (61.3 to 66.5)	73.5 (66.4 to 80)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m²)	-9.2 (-9.9 to -8.6)	3.4 (3 to 4.1)	10.5 (8.8 to 12.2)	-8.2 (-8.6 to -7.7)	0.1 (-0.4 to 0.6)	3.9 (3 to 5.1)
P_{30}	74.2 (72.4 to 76)	90.2 (89.1 to 91.2)	71.2 (67.4 to 74.9)	71.5 (69.6 to 73.4)	91 (89.4 to 92.5)	74.1 (67.1 to 80.8)
Correct classification	44.8 (42.8 to 46.8)	69.9 (68.2 to 71.5)	61 (56.9 to 65.1)	46 (43.9 to 48.1)	67.6 (65.1 to 70.2)	69.6 (62.2 to 76.8)
$eGFR_{cr\text{-}cys}$						
Bias, median difference (ml/min/1.73m²)	1 (0.5 to 1.3)	6.2 (5.6 to 6.8)	2.2 (1.5 to 3.1)	0.5 (0.1 to 0.8)	2.7 (2.1 to 3.4)	1 (0.1 to 2.1)
P_{30}	84.6 (83.1 to 86)	88.4 (87.3 to 89.6)	89.4 (86.8 to 91.9)	84.1 (82.5 to 85.6)	88 (86.2 to 89.8)	82.3 (76.1 to 88.1)
Correct classification	59.4 (57.4 to 61.4)	69.5 (67.8 to 71.1)	70.9 (67.2 to 74.7)	64.1 (62.1 to 66.1)	66 (63.4 to 68.5)	75.3 (68.5 to 82.1)
	Male (N = 5653)			**Female (N = 3751)**		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 2784)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 2466)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 403)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 1681)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 1760)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 310)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m²)	15.6 (15 to 16.3)	4.1 (3.6 to 4.6)	-4.3 (-5.3 to -3.5)	13.8 (13 to 14.7)	5 (4.4 to 5.8)	-5 (-7 to -3.7)
P_{30}	48.6 (46.8 to 50.4)	86.5 (85.1 to 87.8)	85.9 (82.3 to 89.1)	51.6 (49.2 to 54)	85.3 (83.6 to 87)	85.8 (81.8 to 89.5)
Correct classification	37.9 (36.1 to 39.7)	67.5 (65.6 to 69.3)	63.3 (58.6 to 68)	38.3 (36 to 40.6)	65.1 (62.9 to 67.3)	60 (54.6 to 65.4)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m²)	-9 (-9.5 to -8.5)	1.7 (1.3 to 2.1)	7.9 (6.5 to 9.7)	-8.1 (-8.7 to -7.5)	2.7 (2.1 to 3.3)	9.4 (7.4 to 11.6)
P_{30}	73.4 (71.7 to 75)	90.6 (89.4 to 91.7)	71.5 (66.9 to 75.9)	72.2 (70 to 74.2)	90.2 (88.8 to 91.6)	72.3 (67.2 to 77.2)
Correct classification	44.9 (43.1 to 46.8)	69.1 (67.3 to 70.9)	62 (57.2 to 66.7)	46.1 (43.8 to 48.5)	69.3 (67.1 to 71.5)	64.2 (58.8 to 69.6)
$eGFR_{cr\text{-}cys}$						
Bias, median difference (ml/min/1.73m²)	0.8 (0.5 to 1.2)	4.4 (3.8 to 5)	1.5 (0.7 to 2.2)	0.6 (0.2 to 1)	5.8 (5.1 to 6.6)	2.4 (1.5 to 3.4)
P_{30}	85.9 (84.6 to 87.2)	89.5 (88.3 to 90.8)	88.8 (85.6 to 91.8)	81.7 (79.8 to 83.5)	86.6 (85 to 88.2)	86.5 (82.5 to 90.2)
Correct classification	62.7 (61 to 64.5)	69.5 (67.7 to 71.3)	72.9 (68.6 to 77.3)	59.8 (57.5 to 62.1)	66.8 (64.6 to 69)	70.6 (65.5 to 75.5)

	BMI <25 (N = 3877)			BMI ≥25 (N = 3887)		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 1836)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 1733)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 308)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 1938)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 1665)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 284)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m²)	15.6 (14.7 to 16.5)	5.6 (4.8 to 6.2)	-4.7 (-6.1 to -3.5)	14 (13.4 to 14.6)	2.5 (1.9 to 3.1)	-4.8 (-6.4 to -3.9)
P_{30}	49.2 (46.9 to 51.5)	85 (83.3 to 86.6)	87.7 (83.9 to 91.3)	52 (49.8 to 54.2)	87.3 (85.6 to 88.8)	82.7 (78.3 to 87)
Correct classification	36.9 (34.6 to 39.1)	65.3 (63.1 to 67.5)	62.7 (57.2 to 68.1)	38.6 (36.5 to 40.8)	66.7 (64.3 to 68.9)	62.7 (57.1 to 68.4)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m²)	-9.1 (-9.6 to -8.5)	3.1 (2.5 to 3.7)	11.9 (10.1 to 13.6)	-8.3 (-8.8 to -7.9)	0.4 (-0.2 to 1)	5.2 (3.9 to 6.3)
P_{30}	72.4 (70.4 to 74.4)	89.8 (88.4 to 91.3)	69.5 (64.1 to 74.5)	72.8 (70.8 to 74.8)	91.1 (89.7 to 92.4)	78.1 (73.3 to 82.8)
Correct classification	44.3 (42.1 to 46.6)	69.4 (67.2 to 71.6)	60 (54.5 to 65.5)	45.6 (43.4 to 47.7)	67.2 (65 to 69.5)	69.7 (64.3 to 75)
$eGFR_{cr-cys}$						
Bias, median difference (ml/min/1.73m²)	0.7 (0.3 to 1.1)	6.6 (5.7 to 7.2)	3 (2 to 4.1)	0.7 (0.3 to 1.2)	2.5 (2 to 3)	0.1 (-0.6 to 0.7)
P_{30}	84.5 (82.8 to 86.1)	86.7 (85.1 to 88.3)	87.7 (83.9 to 91.3)	83.3 (81.6 to 84.9)	89.7 (88.2 to 91.1)	90.5 (86.8 to 93.8)
Correct classification	62 (59.8 to 64.3)	67.7 (65.5 to 69.8)	71.7 (66.7 to 76.6)	60.2 (58 to 62.4)	67.9 (65.6 to 70.2)	75.7 (70.7 to 80.6)
	mGFR <60 ml/min/1.73m² (N = 4404)			**mGFR ≥60 ml/min/1.73m² (N = 5000)**		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 2674)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 1436)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 294)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 1791)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 2790)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 419)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m²)	13.4 (12.7 to 14)	2.9 (2.4 to 3.3)	-2.5 (-3.1 to -2)	17.7 (16.7 to 18.5)	6 (5.3 to 6.6)	-9.8 (-11.5 to -8.2)
P_{30}	40 (38.2 to 41.9)	79.7 (77.5 to 81.7)	77.2 (72.3 to 81.9)	64.2 (62 to 66.5)	89.2 (88 to 90.4)	91.9 (89.2 to 94.4)
Correct classification	28.6 (27 to 30.3)	57.7 (55.2 to 60.2)	72.8 (67.7 to 77.9)	52.1 (49.8 to 54.4)	71 (69.3 to 72.7)	54.2 (49.5 to 58.9)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m²)	-6.2 (-6.6 to -5.8)	0.9 (0.4 to 1.3)	3.8 (3 to 4.5)	-15.3 (-15.8 to -14.5)	3.5 (2.9 to 4.3)	15.4 (13.6 to 17.1)
P_{30}	72.1 (70.4 to 73.8)	86.1 (84.3 to 87.9)	67 (61.6 to 72.3)	74.1 (72.1 to 76.2)	92.6 (91.6 to 93.6)	75.2 (70.9 to 79.3)
Correct classification	49.5 (47.5 to 51.3)	63.8 (61.4 to 66.3)	63.6 (58 to 69.1)	39.3 (37 to 41.6)	71.9 (70.2 to 73.6)	62.5 (57.8 to 67.1)
$eGFR_{cr-cys}$						
Bias, median difference (ml/min/1.73m²)	1.3 (1 to 1.7)	1.8 (1.4 to 2.2)	0.5 (-0.2 to 0.9)	-0.6 (-1.3 to 0.1)	7.7 (7.1 to 8.2)	4.9 (3.7 to 6.7)
P_{30}	78.3 (76.8 to 79.9)	84 (82.2 to 85.9)	85 (80.9 to 89)	93.2 (92.1 to 94.4)	90.5 (89.4 to 91.6)	89.7 (86.8 to 92.6)
Correct classification	56.7 (54.8 to 58.5)	61.8 (59.3 to 64.2)	75.1 (70.2 to 80)	69.1 (66.9 to 71.2)	71.8 (70 to 73.4)	69.7 (65.2 to 74)

	No Diabetes (N = 6914)			Diabetes (N = 2490)		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 2916)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 3382)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 616)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 1549)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 844)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 97)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m^2)	15.3 (14.8 to 15.9)	4.5 (4.1 to 5)	-5.1 (-6.2 to -4.2)	14.4 (13.6 to 15.1)	4.2 (3.3 to 4.9)	-2.7 (-3.7 to -1.8)
P_{30}	50 (48.2 to 51.8)	86.5 (85.3 to 87.6)	87.5 (84.8 to 90.1)	49.2 (46.7 to 51.6)	84 (81.5 to 86.5)	75.3 (66.3 to 83.3)
Correct classification	37.9 (36.1 to 39.6)	67 (65.4 to 68.5)	59.4 (55.6 to 63.3)	38.4 (36 to 40.9)	64.6 (61.3 to 67.8)	77.4 (68.8 to 85.3)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m^2)	-9 (-9.5 to -8.4)	2.6 (2.1 to 3.1)	9.6 (8.2 to 11)	-8.3 (-8.7 to -7.7)	0.6 (0.1 to 1.2)	3.9 (2.5 to 5.8)
P_{30}	72.8 (71.2 to 74.4)	90.7 (89.7 to 91.7)	72.1 (68.5 to 75.5)	73.1 (70.9 to 75.3)	89.3 (87.2 to 91.4)	70 (60.4 to 79.1)
Correct classification	44.5 (42.7 to 46.3)	70 (68.4 to 71.5)	62.6 (58.8 to 66.5)	47 (44.5 to 49.5)	66 (62.8 to 69.2)	64.9 (55.3 to 74.4)
$eGFR_{cr\text{-}cys}$						
Bias, median difference (ml/min/1.73m^2)	0.8 (0.4 to 1.1)	5.4 (5 to 5.8)	2.2 (1.5 to 3.1)	0.7 (0.2 to 1.2)	3.4 (2.7 to 4.3)	0.7 (-0.3 to 1.7)
P_{30}	84 (82.6 to 85.3)	88.8 (87.7 to 89.9)	89.6 (87.2 to 91.9)	85 (83.2 to 86.7)	86.2 (83.9 to 88.6)	76.3 (67.6 to 84.7)
Correct classification	60.3 (58.6 to 62.1)	68.9 (67.3 to 70.4)	71.7 (68.2 to 75.3)	64.1 (61.7 to 66.4)	66.2 (63 to 69.4)	73.1 (64 to 81.7)
	No CVD (N = 6617)			**CVD (N = 2787)**		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 2760)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 3284)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 573)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 1705)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 942)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 140)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m^2)	15.6 (15 to 16.4)	4.7 (4.2 to 5.3)	-5 (-6.3 to -4.2)	14.2 (13.5 to 14.7)	3.7 (3.2 to 4.3)	-3.1 (-4.7 to -2.1)
P_{30}	51.7 (49.9 to 53.6)	86.7 (85.6 to 87.9)	86.9 (84.1 to 89.6)	46.5 (44.2 to 48.8)	83.3 (80.9 to 85.7)	81.5 (74.8 to 87.7)
Correct classification	39.3 (37.5 to 41.2)	68 (66.4 to 69.6)	59.9 (55.9 to 63.9)	36 (33.8 to 38.3)	61.1 (58.1 to 64.2)	70.1 (62.3 to 77.5)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m^2)	-9.2 (-9.7 to -8.7)	2.7 (2.1 to 3.1)	9.8 (8.2 to 11.4)	-7.9 (-8.4 to -7.4)	0.7 (0.1 to 1.2)	5.2 (3.2 to 6.6)
P_{30}	74.2 (72.6 to 75.9)	91.3 (90.2 to 92.2)	71.2 (67.5 to 74.9)	70.8 (68.6 to 72.9)	87.5 (85.4 to 89.6)	74.3 (66.9 to 81.4)
Correct classification	45.3 (43.4 to 47.1)	70.6 (69 to 72.1)	63.3 (59.3 to 67.3)	45.5 (43.2 to 47.9)	64.3 (61.3 to 67.3)	61.4 (53.2 to 69.4)
$eGFR_{cr\text{-}cys}$						
Bias, median difference (ml/min/1.73m^2)	0.8 (0.4 to 1.1)	5.5 (5.1 to 6.1)	2.2 (1.5 to 3.1)	0.7 (0.2 to 1.2)	3.2 (2.2 to 4.1)	0.9 (-0.2 to 1.8)
P_{30}	85.9 (84.6 to 87.2)	89.3 (88.2 to 90.4)	88.8 (86.2 to 91.3)	81.7 (79.8 to 83.5)	84.8 (82.5 to 87.1)	83.6 (77.3 to 89.6)
Correct classification	61.8 (60 to 63.7)	69.8 (68.2 to 71.4)	72.1 (68.4 to 75.7)	61.3 (58.9 to 63.6)	63.4 (60.4 to 66.4)	71.4 (63.7 to 78.7)

	No heart failure (N = 8430)			Heart failure (N = 974)		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 3783)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 3973)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 674)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 682)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 253)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 39)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m^2)	15.6 (15.1 to 16.1)	4.5 (4.1 to 4.9)	-4.7 (-5.5 to -4)	12 (11 to 13)	3.4 (2.3 to 4.7)	-2.3 (-5.2 to -0.6)
P_{30}	50.4 (48.8 to 52)	86.5 (85.5 to 87.6)	86.2 (83.5 to 88.7)	46 (42.3 to 49.7)	77.1 (71.8 to 82.1)	79.6 (66 to 91.4)
Correct classification	38.2 (36.6 to 39.7)	66.9 (65.4 to 68.3)	61.3 (57.6 to 64.9)	37.5 (33.9 to 41.2)	60.5 (54.4 to 66.4)	71.9 (56.8 to 85.7)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m^2)	-9 (-9.5 to -8.6)	2.2 (1.8 to 2.6)	8.7 (7.3 to 10.1)	-7.2 (-7.8 to -6.5)	1.1 (-0.2 to 2.1)	6.7 (2.3 to 14.5)
P_{30}	73.9 (72.4 to 75.2)	91 (90.1 to 91.9)	72.4 (69 to 75.7)	67.8 (64.2 to 71.2)	81.1 (76 to 85.8)	61.5 (45.2 to 76.7)
Correct classification	45.3 (43.8 to 46.9)	69.9 (68.4 to 71.3)	63.3 (59.7 to 67)	45.6 (41.8 to 49.3)	58.5 (52.4 to 64.4)	56.3 (40.4 to 71.8)
$eGFR_{cr\text{-}cys}$						
Bias, median difference (ml/min/1.73m^2)	0.8 (0.5 to 1.1)	5.1 (4.7 to 5.5)	1.8 (1.2 to 2.6)	0.4 (-0.2 to 1.1)	2.7 (1.4 to 4.4)	1.8 (-1.4 to 5.5)
P_{30}	85.7 (84.6 to 86.8)	88.9 (87.9 to 89.9)	88.6 (86.1 to 91)	76.5 (73.3 to 79.7)	79.5 (74.4 to 84.3)	74.3 (59.5 to 87.5)
Correct classification	61.8 (60.3 to 63.3)	68.9 (67.4 to 70.3)	72.1 (68.7 to 75.5)	60.7 (57.1 to 64.3)	60.1 (53.9 to 66)	69.1 (53.8 to 83.8)
	No liver disease (N = 6883)			**Liver disease (N = 2521)**		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 2771)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 3438)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 674)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 1694)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 788)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 39)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m^2)	13.6 (13 to 14.1)	3.6 (3.2 to 4.1)	-4.8 (-5.6 to -4)	17.5 (16.7 to 18.3)	9.1 (7.9 to 9.9)	-0.8 (-3.4 to 1.8)
P_{30}	52.1 (50.2 to 53.9)	87 (85.9 to 88.1)	85.5 (82.8 to 88)	45.9 (43.6 to 48.3)	81.4 (78.5 to 84)	92.2 (82.9 to 100)
Correct classification	40.1 (38.3 to 41.9)	67.7 (66.2 to 69.3)	61.5 (57.7 to 65.1)	34.7 (32.4 to 37)	61 (57.7 to 64.4)	69.1 (54.1 to 83.7)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m^2)	-8.5 (-9 to -8.1)	2.1 (1.7 to 2.5)	8.2 (6.7 to 9.8)	-8.9 (-9.5 to -8.4)	2 (1.4 to 2.7)	13.9 (7.7 to 19.2)
P_{30}	71.4 (69.7 to 73)	90.4 (89.4 to 91.4)	72.1 (68.7 to 75.5)	75.4 (73.4 to 77.5)	90.6 (88.5 to 92.6)	66.8 (51.5 to 81.8)
Correct classification	45.7 (43.8 to 47.6)	69.6 (68.1 to 71.1)	63.6 (60 to 67.3)	44.8 (42.5 to 47.2)	67.4 (64.1 to 70.6)	51.4 (35.7 to 67.3)
$eGFR_{cr\text{-}cys}$						
Bias, median difference (ml/min/1.73m^2)	0.4 (0 to 0.8)	4.5 (4 to 5)	1.7 (0.9 to 2.2)	1.4 (0.8 to 2)	7.1 (6.4 to 7.7)	7.3 (3.1 to 12.6)
P_{30}	83.6 (82.2 to 85)	88.9 (87.8 to 89.9)	88 (85.5 to 90.4)	85.5 (83.8 to 87.1)	85.8 (83.3 to 88.2)	84.7 (72.5 to 95.1)
Correct classification	61.3 (59.5 to 63.1)	69.1 (67.5 to 70.6)	73.3 (69.9 to 76.6)	62.1 (59.8 to 64.4)	65.3 (62 to 68.6)	48.8 (33.3 to 64.6)

	No cancer (N = 6740)			Cancer (N = 2664)		
	$eGFR_{cys}$<$eGFR_{cr}$ (N = 3034)	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 3103)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 603)**	**$eGFR_{cys}$<$eGFR_{cr}$ (N = 1431)**	**$eGFR_{cys}$ ≈ $eGFR_{cr}$ (N = 1123)**	**$eGFR_{cys}$>$eGFR_{cr}$ (N = 110)**
$eGFR_{cr}$						
Bias, median difference (ml/min/1.73m^2)	15 (14.5 to 15.6)	4.7 (4.2 to 5.3)	-4.4 (-5.3 to -3.7)	14.9 (14.2 to 15.7)	3.7 (2.9 to 4.4)	-5.3 (-7.7 to -3.1)
P_{30}	47.2 (45.4 to 48.9)	84.7 (83.4 to 86)	85.2 (82.4 to 88)	55.2 (52.6 to 57.8)	89.4 (87.6 to 91.2)	89.1 (83 to 94.5)
Correct classification	38.1 (36.4 to 39.8)	65.8 (64.2 to 67.4)	62.4 (58.6 to 66.2)	38 (35.5 to 40.5)	68.3 (65.5 to 71)	59.1 (50 to 68.1)
$eGFR_{cys}$						
Bias, median difference (ml/min/1.73m^2)	-7.6 (-8 to -7.2)	2.6 (2.2 to 3)	7.6 (6.4 to 8.9)	-11.2 (-12.1 to -10.4)	0.5 (-0.1 to 1.2)	11.9 (10 to 15)
P_{30}	74 (72.4 to 75.5)	89.5 (88.4 to 90.6)	71 (67.4 to 74.5)	70.7 (68.4 to 73)	93 (91.4 to 94.4)	76.4 (68.1 to 84.2)
Correct classification	48 (46.2 to 49.7)	69.1 (67.5 to 70.8)	62.8 (58.9 to 66.7)	39.9 (37.4 to 42.5)	69.3 (66.5 to 71.9)	63.6 (54.4 to 72.5)
$eGFR_{cr\text{-}cys}$						
Bias, median difference (ml/min/1.73m^2)	1.2 (0.8 to 1.6)	5.1 (4.6 to 5.6)	1.4 (0.8 to 2)	-0.3 (-0.9 to 0.2)	4.6 (3.6 to 5.3)	5.4 (3.4 to 7)
P_{30}	82.6 (81.3 to 83.9)	87.5 (86.4 to 88.7)	88.4 (85.8 to 90.9)	88 (86.2 to 89.6)	90.5 (88.7 to 92.1)	84.6 (77.7 to 91)
Correct classification	61.4 (59.7 to 63.2)	68.4 (66.8 to 70)	71.9 (68.4 to 75.5)	62 (59.5 to 64.5)	68.2 (65.4 to 70.9)	71.8 (63.3 to 80)

Supplemental Table S7. Baseline characteristics of included individuals (n=6185) with measured GFR measurements (n=9404) in Stockholm during 2007-2018, stratified by raw discordance between $eGFR_{cr}$ and $eGFR_{cys}$.

	$eGFR_{cys}$<$eGFR_{cr}$	**$eGFR_{cys}$ ≈ $eGFR_{cr}$**	**$eGFR_{cys}$>$eGFR_{cr}$**
	$eGFR_{cys}$ >15 ml/min/1.73m^2 lower than $eGFR_{cr}$	$eGFR_{cys}$ within 15 ml/min/1.73m^2 of $eGFR_{cr}$	$eGFR_{cys}$ >15 ml/min/1.73m^2 higher than $eGFR_{cr}$
Number of persons, n (%)*	2575 (42)	3692 (60)	476 (8)
Number of measurements, n (%)	3884 (41)	4999 (53)	521 (6)
Mean age (SD), y	57 (17)	57 (17)	44 (15)
Age ≥65 years, n (%)	1579 (41)	1940 (39)	50 (10)
Female sex, n (%)	1370 (35)	2163 (43)	218 (42)
Mean BMI (SD), kg/m^2	26 (5)	26 (7)	26 (23)
BMI ≥25 kg/m^2, n (%)†	1602 (41)	2123 (42)	162 (31)
GFR measurements, median (IQR)			
Creatinine, µmol/L‡	84 [69, 107]	107 [80, 160]	94 [80, 110]
Cystatin C, mg/L	1 [1, 2]	1 [1, 2]	1 [1, 1]
$eGFR_{cr}$, ml/min/1.73m^2	84 [63, 101]	62 [36, 92]	80 [68, 93]
$eGFR_{cys}$, ml/min/1.73m^2	50 [35, 68]	58 [31, 90]	107 [92, 118]
$eGFR_{cr\text{-}cys}$, ml/min/1.73m^2	64 [46, 83]	60 [33, 94]	96 [83, 109]
Measured GFR, ml/min/1.73m^2	62 [46, 80]	58 [33, 84]	88 [76, 99]
Measured GFR categories, n (%)			
≥90	556 (14)	959 (19)	240 (46)
60 to <90	1538 (40)	1459 (29)	248 (48)
45 to <60	875 (23)	783 (16)	19 (4)
30 to <45	620 (16)	717 (14)	7 (1)
15 to <30	269 (7)	748 (15)	3 (1)
<15	26 (1)	333 (7)	4 (1)
Medical history, n (%)	0 (0)	0 (0)	0 (0)
Cardiovascular disease‖	1315 (34)	1423 (28)	49 (9)
Heart failure	462 (12)	497 (10)	15 (3)
Diabetes mellitus	1255 (32)	1204 (24)	31 (6)
Cancer	1312 (34)	1258 (25)	94 (18)
Liver disease	1568 (40)	927 (19)	26 (5)
Kidney transplantation	127 (3)	223 (4)	0 (0)
Kidney donor	16 (0)	218 (4)	50 (10)

BMI = body mass index; COPD = chronic obstructive pulmonary disease; Cr = creatinine; cys = cystatin C; eGFR = estimated glomerular filtration rate; n = number; GFR = glomerular filtration rate; RASi = renin-angiotensin system inhibition (angiotensin-converting enzyme inhibitor or angiotensin receptor blocker); NSAIDs = non-steroidal anti-inflammatory drugs; y = years.

* Adds up to >100% since an individual can contribute multiple mGFR measurements and therefore contribute to all three strata

† BMI was missing for 662 (17%) in the $eGFR_{cys}$<$eGFR_{cr}$ group, 846 (17%) in the $eGFR_{cys}$ ≈ $eGFR_{cr}$ group and 132 (25%) in the $eGFR_{cys}$>$eGFR_{cr}$ group.

‡ To convert plasma creatinine from µmol/L to mg/dL, multiply by 0.0113.

‖ Cardiovascular disease was defined as a composite of myocardial infarction, other ischemic heart disease, heart failure, stroke, other cerebrovascular disease, arrhythmia and peripheral vascular disease.

Supplemental Table S8. Bias, P_{30}, IQR and correct classification of $eGFR_{cr}$, $eGFR_{cys}$ and $eGFR_{cr\text{-}cys}$ overall, and stratified by raw discordance between $eGFR_{cr}$ and $eGFR_{cys}$.

	$eGFR_{cys}$<$eGFR_{cr}$	**$eGFR_{cys}$ ≈ $eGFR_{cr}$**	**$eGFR_{cys}$>$eGFR_{cr}$**
	$eGFR_{cys}$ >15 ml/min/1.73m^2 lower than $eGFR_{cr}$	$eGFR_{cys}$ within 15 ml/min/1.73m^2 of $eGFR_{cr}$	$eGFR_{cys}$ >15 ml/min/1.73m^2 higher than $eGFR_{cr}$
$eGFR_{cr}$‡			
Bias, median difference (ml/min/1.73m^2)*	18.3 (17.8 to 18.8)	3.6 (3.3 to 4)	-7.4 (-8.7 to -5.6)
P_{30}†	48 (46.5 to 49.6)	82.3 (81.3 to 83.4)	92.7 (90.4 to 94.9)
IQR, ml/min/1.73m^2 **	16.9 (10.4 to 27.3)	12.9 (-2.3 to 10.6)	17.5 (-16.0 to 1.5)
Correct classification‡‡	35.6 (34.1 to 37.2)	65.2 (63.9 to 66.5)	59.1 (55 to 63.3)
$eGFR_{cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	-9.5 (-10 to -9)	0.8 (0.5 to 1.1)	16.8 (15.5 to 17.9)
P_{30}†	74.7 (73.3 to 76.1)	86.2 (85.2 to 87.1)	72.8 (68.8 to 76.5)
IQR, ml/min/1.73m^2 **	15.6 (-17.9 to -2.3)	12.4 (-5.1 to 7.3)	16.8 (8.1 to 24.9)
Correct classification‡‡	44.9 (43.3 to 46.4)	66.8 (65.5 to 68)	61.2 (56.9 to 65.4)
$eGFR_{cr\text{-}cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	1.9 (1.5 to 2.4)	2.5 (2.2 to 2.9)	7.2 (5.4 to 8.6)
P_{30}†	85.7 (84.6 to 86.8)	86.8 (85.9 to 87.8)	87.4 (84.4 to 90.2)
IQR, ml/min/1.73m^2 **	14.7 (-5.2 to 9.4)	12.5 (-2.6 to 9.9)	18.1 (-1.8 to 16.3)
Correct classification‡‡	61.6 (60.1 to 63.1)	68 (66.7 to 69.3)	69.8 (65.9 to 73.7)

Cr = creatinine; cys = cystatin C; diff = difference; eGFR = estimated glomerular filtration rate; mGFR = measured glomerular filtration rate.

* Bias was expressed as the median difference in estimated GFR minus measured GFR (95% confidence interval). A negative bias indicates underestimation of the measured GFR, and a positive bias indicates overestimation of the measured GFR.

† P_{30} was defined as the percentage of individuals with estimated GFRs within 30% of measured GFR (95% confidence interval).

‡ eGFR was calculated using the CKD-EPI 2012 and 2021 equations.

** IQR is defined as the interquartile range and a measure of precision (the dispersion of individual errors around the median bias)

‡‡ Correct classification of GFR categories was defined as agreement of eGFR and mGFR categories using the KDIGO GFR categories (<15, 15-29, 30-44, 45-59, 60-89 and ≥90 ml/min/1.73m^2).

Supplemental Table S9. Sensitivity analysis **restricting to same-day measurements of iohexol, creatinine and cystatin C (N = 7252).**

	$eGFR_{cys}$<$eGFR_{cr}$	**$eGFR_{cys}$ ≈ $eGFR_{cr}$**	**$eGFR_{cys}$>$eGFR_{cr}$**
	$eGFR_{cys}$ >20% lower than $eGFR_{cr}$	$eGFR_{cys}$ within 20% of $eGFR_{cr}$	$eGFR_{cys}$ >20% higher than $eGFR_{cr}$
$eGFR_{cr}$‡			
Bias, median difference (ml/min/1.73m^2)*	15.5 (15 to 16.1)	4.7 (4.2 to 5.3)	-5.5 (-7.3 to -4.4)
P_{30}†	49 (47.3 to 50.7)	86.6 (85.5 to 87.8)	89.7 (86.9 to 92.2)
IQR, ml/min/1.73m^2 **	17.1 (7.6 to 24.7)	15.2 (-1.9 to 13.3)	13.3 (-14.2 to -0.8)
Correct classification‡‡	37.9 (36.2 to 39.5)	66.9 (65.3 to 68.5)	59.9 (55.5 to 64.2)
$eGFR_{cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	-8 (-8.4 to -7.7)	2.2 (1.8 to 2.6)	10.1 (8.8 to 11.6)
P_{30}†	76.7 (75.2 to 78.1)	91.6 (90.6 to 92.5)	75.3 (71.4 to 79)
IQR, ml/min/1.73m^2 **	13.5 (-15.6 to -2.1)	13.8 (-3.9 to 9.9)	17.2 (2.8 to 19.9)
Correct classification‡‡	47.4 (45.7 to 49.1)	69.8 (68.3 to 71.4)	62.3 (58 to 66.5)
$eGFR_{cr\text{-}cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	1.2 (0.8 to 1.5)	5.3 (4.8 to 5.7)	2.4 (1.5 to 3.4)
P_{30}†	85.5 (84.2 to 86.7)	89.4 (88.3 to 90.4)	89.9 (87.1 to 92.4)
IQR, ml/min/1.73m^2 **	12.2 (-4.5 to 7.6)	14.4 (-1.2 to 13.2)	13.7 (-3.1 to 10.6)
Correct classification‡‡	63.4 (61.7 to 65)	68.9 (67.3 to 70.5)	69.9 (65.9 to 73.8)

Cr = creatinine; cys = cystatin C; diff = difference; eGFR = estimated glomerular filtration rate; mGFR = measured glomerular filtration rate.

* Bias was expressed as the median difference in estimated GFR minus measured GFR (95% confidence interval). A negative bias indicates underestimation of the measured GFR, and a positive bias indicates overestimation of the measured GFR.

† P_{30} was defined as the percentage of individuals with estimated GFRs within 30% of measured GFR (95% confidence interval).

‡ eGFR was calculated using the CKD-EPI 2012 and 2021 equations.

** IQR is defined as the interquartile range and a measure of precision (the dispersion of individual errors around the median bias)

‡‡ Correct classification of GFR categories was defined as agreement of eGFR and mGFR categories using the KDIGO GFR categories (<15, 15-29, 30-44, 45-59, 60-89 and ≥90 ml/min/1.73m^2).

Supplemental Table S10. Sensitivity analysis **restricting to first measurement for each patient (N = 6185)**.

	$eGFR_{cys}$<$eGFR_{cr}$	**$eGFR_{cys}$ ≈ $eGFR_{cr}$**	**$eGFR_{cys}$>$eGFR_{cr}$**
	$eGFR_{cys}$ >20% lower than $eGFR_{cr}$	$eGFR_{cys}$ within 20% of $eGFR_{cr}$	$eGFR_{cys}$ >20% higher than $eGFR_{cr}$
$eGFR_{cr}$‡			
Bias, median difference (ml/min/1.73m^2)*	13.9 (13.4 to 14.4)	3.6 (3.2 to 4)	-4.9 (-6 to -4.2)
P_{30}†	53.5 (51.6 to 55.3)	87.8 (86.5 to 89)	85.6 (82.6 to 88.5)
IQR, ml/min/1.73m^2 **	17.9 (5.8 to 23.7)	15.4 (-3.0 to 12.4)	13.4 (-14.3 to -0.9)
Correct classification‡‡	41.3 (39.5 to 43.1)	69.1 (67.4 to 70.7)	59.7 (55.6 to 63.7)
$eGFR_{cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	-10 (-10.5 to -9.5)	1.9 (1.5 to 2.3)	8 (6.6 to 9.7)
P_{30}†	69.6 (67.9 to 71.4)	90.9 (89.9 to 91.9)	73.8 (70 to 77.4)
IQR, ml/min/1.73m^2 **	15.2 (-18.5 to -3.3)	14.3 (-4.5 to 9.9)	16.1 (2.3 to 18.4)
Correct classification‡‡	43.2 (41.3 to 45)	70.9 (69.3 to 72.6)	64.8 (60.7 to 68.7)
$eGFR_{cr\text{-}cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	-0.1 (-0.6 to 0.3)	4.6 (4 to 5.1)	1.6 (0.8 to 2.1)
P_{30}†	85.1 (83.7 to 86.4)	89.5 (88.4 to 90.6)	88.1 (85.3 to 90.7)
IQR, ml/min/1.73m^2 **	13.0 (-6.9 to 6.1)	15.0 (-1.9 to 13.2)	11.9 (-2.9 to 9.0)
Correct classification‡‡	62.6 (60.8 to 64.4)	70.4 (68.7 to 72)	72.2 (68.3 to 75.8)

Cr = creatinine; cys = cystatin C; diff = difference; eGFR = estimated glomerular filtration rate; mGFR = measured glomerular filtration rate.

* Bias was expressed as the median difference in estimated GFR minus measured GFR (95% confidence interval). A negative bias indicates underestimation of the measured GFR, and a positive bias indicates overestimation of the measured GFR.

† P_{30} was defined as the percentage of individuals with estimated GFRs within 30% of measured GFR (95% confidence interval).

‡ eGFR was calculated using the CKD-EPI 2012 and 2021 equations.

** IQR is defined as the interquartile range and a measure of precision (the dispersion of individual errors around the median bias)

‡‡ Correct classification of GFR categories was defined as agreement of eGFR and mGFR categories using the KDIGO GFR categories (<15, 15-29, 30-44, 45-59, 60-89 and ≥90 ml/min/1.73m^2).

Supplemental Table S11. Sensitivity analysis **restricting to measurements taken after 2011** (i.e., after standardization of cystatin C) **(N = 7277)**.

	$eGFR_{cys}$<$eGFR_{cr}$	**$eGFR_{cys}$ ≈ $eGFR_{cr}$**	**$eGFR_{cys}$>$eGFR_{cr}$**
	$eGFR_{cys}$ >20% lower than $eGFR_{cr}$	$eGFR_{cys}$ within 20% of $eGFR_{cr}$	$eGFR_{cys}$ >20% higher than $eGFR_{cr}$
$eGFR_{cr}$‡			
Bias, median difference (ml/min/1.73m^2)*	15.4 (14.8 to 15.9)	4.5 (4.1 to 5)	-4.7 (-5.7 to -3.8)
P_{30}†	48 (46.4 to 49.7)	86.1 (85 to 87.3)	87.1 (84.2 to 89.7)
IQR, ml/min/1.73m^2 **	17.5 (7.3 to 24.9)	14.6 (-1.6 to 13.0)	12.7 (-13.6 to -0.8)
Correct classification‡‡	37.3 (35.6 to 38.9)	66.4 (64.8 to 68.1)	62 (58.1 to 65.9)
$eGFR_{cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	-8.2 (-8.6 to -7.8)	2.2 (1.8 to 2.6)	7.7 (6.4 to 9.3)
P_{30}†	74.8 (73.3 to 76.2)	90.6 (89.6 to 91.6)	73.4 (69.6 to 77)
IQR, ml/min/1.73m^2 **	13.5 (-15.5 to -2.0)	13.4 (-3.7 to 9.7)	15.9 (2.4 to 18.3)
Correct classification‡‡	47 (45.4 to 48.7)	69.5 (67.9 to 71)	63.6 (59.6 to 67.5)
$eGFR_{cr\text{-}cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	1.1 (0.7 to 1.4)	5 (4.5 to 5.5)	1.6 (0.9 to 2.2)
P_{30}†	84.8 (83.5 to 86)	88.7 (87.6 to 89.7)	90 (87.5 to 92.4)
IQR, ml/min/1.73m^2 **	12.4 (-4.8 to 7.6)	14.0 (-1.1 to 12.9)	11.7 (-2.9 to 8.8)
Correct classification‡‡	62.5 (60.8 to 64.1)	68.3 (66.7 to 69.9)	72 (68.2 to 75.7)

Cr = creatinine; cys = cystatin C; diff = difference; eGFR = estimated glomerular filtration rate; mGFR = measured glomerular filtration rate.

* Bias was expressed as the median difference in estimated GFR minus measured GFR (95% confidence interval). A negative bias indicates underestimation of the measured GFR, and a positive bias indicates overestimation of the measured GFR.

† P_{30} was defined as the percentage of individuals with estimated GFRs within 30% of measured GFR (95% confidence interval).

‡ eGFR was calculated using the CKD-EPI 2012 and 2021 equations.

** IQR is defined as the interquartile range and a measure of precision (the dispersion of individual errors around the median bias)

‡‡ Correct classification of GFR categories was defined as agreement of eGFR and mGFR categories using the KDIGO GFR categories (<15, 15-29, 30-44, 45-59, 60-89 and ≥90 ml/min/1.73m^2).

Supplemental Table S12. Sensitivity analysis restricting to the first measurement per patient, with standardized cystatin C measurements, and where iohexol, creatinine and cystatin C were measured on the same day (N = 3828).

	$eGFR_{cys}$<$eGFR_{cr}$	**$eGFR_{cys}$ ≈ $eGFR_{cr}$**	**$eGFR_{cys}$>$eGFR_{cr}$**
	$eGFR_{cys}$ >20% lower than $eGFR_{cr}$	$eGFR_{cys}$ within 20% of $eGFR_{cr}$	$eGFR_{cys}$ >20% higher than $eGFR_{cr}$
$eGFR_{cr}$‡			
Bias, median difference (ml/min/1.73m^2)*	14.4 (13.8 to 15.4)	3.5 (3.1 to 4.1)	-7.0 (-9.1 to -5.4)
P_{30}†	50.7 (48.2 to 53.2)	88.5 (87.0 to 90.0)	89.9 (86.4 to 93.0)
IQR, ml/min/1.73m^2 **	17.8 (6.7 to 24.5)	15.4 (-3.0 to 12.4)	14.3 (-15.7 to -1.4)
Correct classification‡‡	40.5 (38.1 to 42.9)	69 (66.8 to 71.1)	56.6 (51.2 to 62.0)
$eGFR_{cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	-8.9 (-9.5 to -8.3)	1.9 (1.5 to 2.6)	8.8 (6.6 to 10.3)
P_{30}†	74.7 (72.6 to 76.9)	92.6 (91.3 to 93.7)	78.2 (73.5 to 82.5)
IQR, ml/min/1.73m^2 **	13.9 (-16.5 to -2.6)	14.0 (-4.4 to 9.6)	16.4 (2.2 to 18.5)
Correct classification‡‡	46.8 (44.3 to 49.2)	71.7 (69.6 to 73.7)	65.7 (60.3 to 70.6)
$eGFR_{cr\text{-}cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	0.5 (0.2 to 1.0)	4.5 (3.8 to 5.0)	1.2 (0.4 to 2.4)
P_{30}†	86.9 (85.2 to 88.5)	91.6 (90.3 to 92.8)	92.7 (89.6 to 95.3)
IQR, ml/min/1.73m^2 **	11.6 (-5.2 to 6.4)	14.5 (-1.9 to 12.6)	13.3 (-4.0 to 9.2)
Correct classification‡‡	64.6 (62.2 to 66.9)	70.4 (68.3 to 72.4)	69.0 (63.8 to 74.0)

Cr = creatinine; cys = cystatin C; diff = difference; eGFR = estimated glomerular filtration rate; mGFR = measured glomerular filtration rate.

* Bias was expressed as the median difference in estimated GFR minus measured GFR (95% confidence interval). A negative bias indicates underestimation of the measured GFR, and a positive bias indicates overestimation of the measured GFR.

† P_{30} was defined as the percentage of individuals with estimated GFRs within 30% of measured GFR (95% confidence interval).

‡ eGFR was calculated using the CKD-EPI 2012 and 2021 equations.

** IQR is defined as the interquartile range and a measure of precision (the dispersion of individual errors around the median bias)

‡‡ Correct classification of GFR categories was defined as agreement of eGFR and mGFR categories using the KDIGO GFR categories (<15, 15-29, 30-44, 45-59, 60-89 and ≥90 ml/min/1.73m^2).

Supplemental Table S13. Sensitivity analysis using the average of $eGFR_{cr}$ and $eGFR_{cys}$ instead of $eGFR_{cr\text{-}cys}$.

	$eGFR_{cys}$<$eGFR_{cr}$	**$eGFR_{cys}$ ≈ $eGFR_{cr}$**	**$eGFR_{cys}$>$eGFR_{cr}$**
	$eGFR_{cys}$ >20% lower than $eGFR_{cr}$	$eGFR_{cys}$ within 20% of $eGFR_{cr}$	$eGFR_{cys}$ >20% higher than $eGFR_{cr}$
$eGFR_{cr\text{-}cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	0.7 (0.4 to 1)	5.0 (4.6 to 5.4)	1.8 (1.2 to 2.5)
P_{30}†	84.3 (83.2 to 85.4)	88.3 (87.3 to 89.3)	87.8 (85.4 to 90.2)
IQR, ml/min/1.73m^2 **	13.6 (-3.5 to 10.0)	12.6 (-5.5 to 7.1)	14.5 (-1.4 to 13.2)
Correct classification‡‡	61.6 (60.2 to 63)	68.4 (67 to 69.7)	71.9 (68.6 to 75.2)
Average of $eGFR_{cr}$ $eGFR_{cys}$‡			
Bias, median difference (ml/min/1.73m^2)*	2.9 (2.6 to 3.2)	3.4 (3 to 3.8)	1.2 (0.8 to 1.8)
P_{30}†	81.8 (80.6 to 82.9)	89.7 (88.8 to 90.7)	88.8 (86.5 to 91)
IQR, ml/min/1.73m^2 **	12.7 (-3.2 to 9.6)	13.5 (-2.6 to 10.9)	11.1 (-3.6 to 7.5)
Correct classification‡‡	61.2 (59.8 to 62.6)	69.7 (68.3 to 71)	72.9 (69.6 to 76.1)

Cr = creatinine; cys = cystatin C; diff = difference; eGFR = estimated glomerular filtration rate; mGFR = measured glomerular filtration rate.

* Bias was expressed as the median difference in estimated GFR minus measured GFR (95% confidence interval). A negative bias indicates underestimation of the measured GFR, and a positive bias indicates overestimation of the measured GFR.

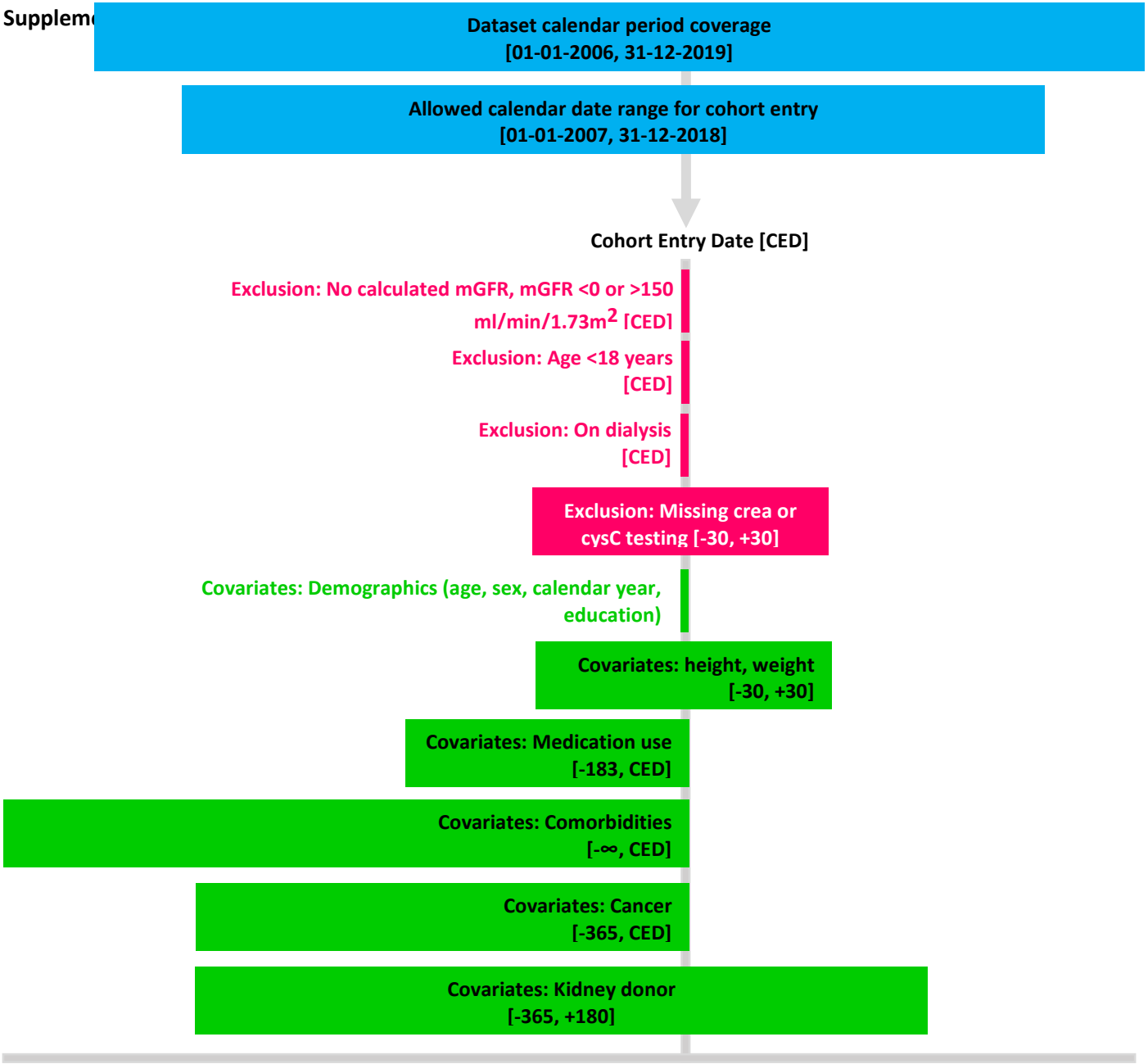
† P_{30} was defined as the percentage of individuals with estimated GFRs within 30% of measured GFR (95% confidence interval).

‡ eGFR was calculated using the CKD-EPI 2012 and 2021 equations.

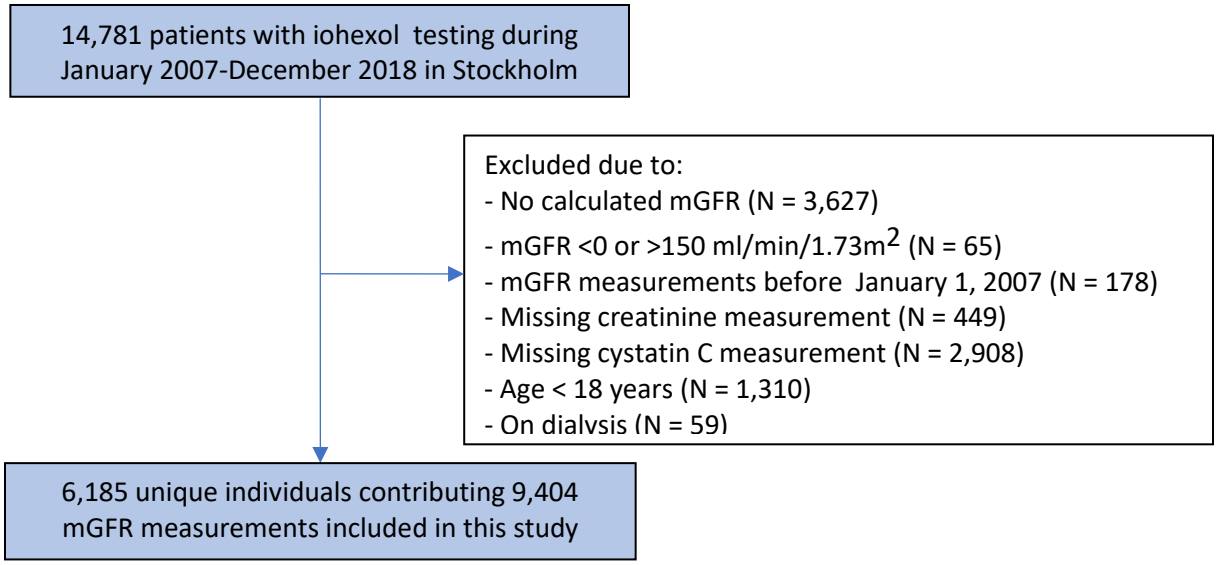
** IQR is defined as the interquartile range and a measure of precision (the dispersion of individual errors around the median bias)

‡‡ Correct classification of GFR categories was defined as agreement of eGFR and mGFR categories using the KDIGO GFR categories (<15, 15-29, 30-44, 45-59, 60-89 and ≥90 ml/min/1.73m^2).

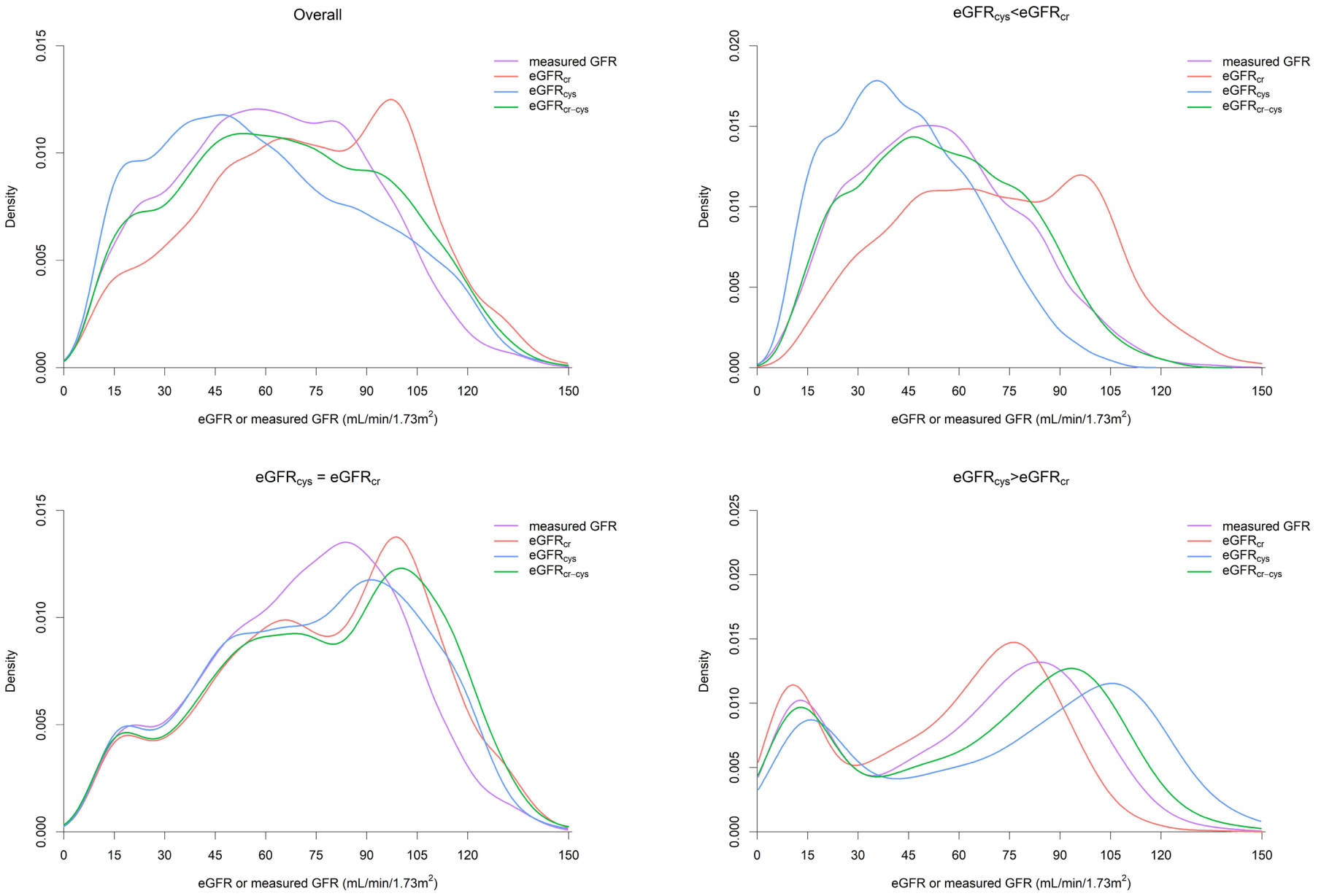
Supplem


Dataset calendar period coverage
[01-01-2006, 31-12-2019]
Allowed calendar date range for cohort entry
[01-01-2007, 31-12-2018]
Cohort Entry Date [CED]
Exclusion: No calculated mGFR, mGFR <0 or >150 ml/min/1.73m2 [CED]
Exclusion: Age <18 years [CED]
Exclusion: On dialysis [CED]
Exclusion: Missing crea or cysC testing [-30, +30]
Covariates: Demographics (age, sex, calendar year, education)
Covariates: height, weight [-30, +30]
Covariates: Medication use [-183, CED]
Covariates: Comorbidities [-∞, CED]
Covariates: Cancer [-365, CED]
Covariates: Kidney donor [-365, +180]

Supplemental Figure S2. Flow chart of included participants in the study.

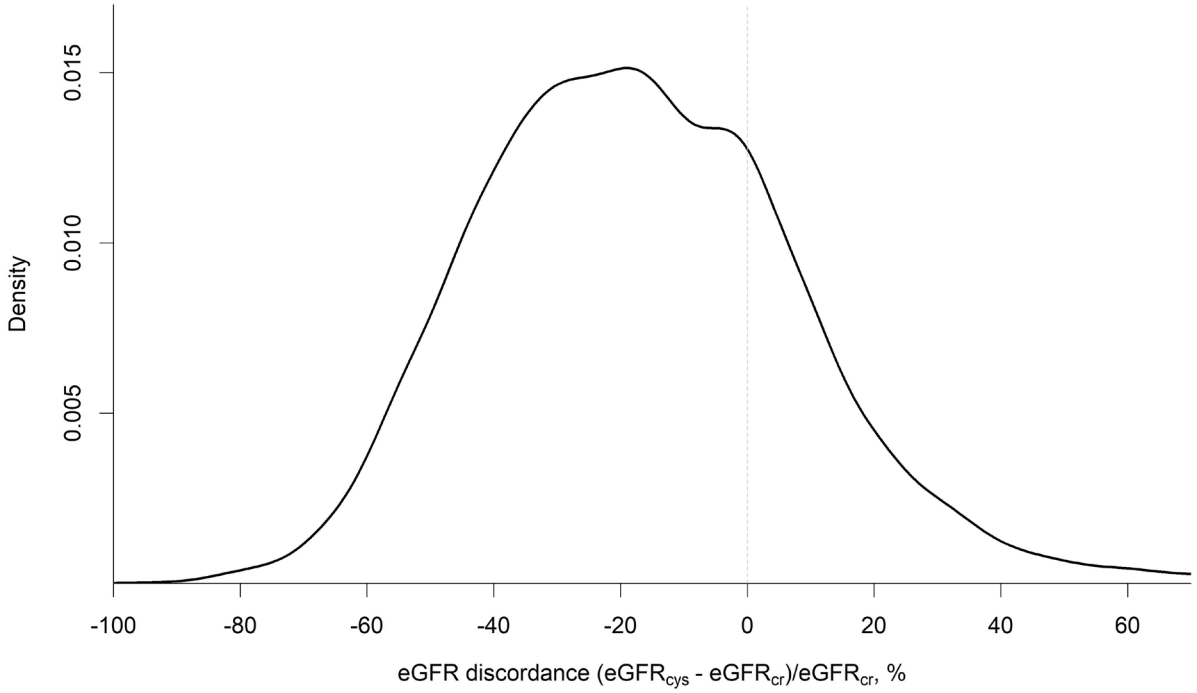


Supplemental Figure S3. Density plot of mGFR, $eGFR_{cr}$, $eGFR_{cys}$ and $eGFR_{cr-cys}$ in the overall population, and stratified by discordance between $eGFR_{cr}$ and $eGFR_{cys}$.

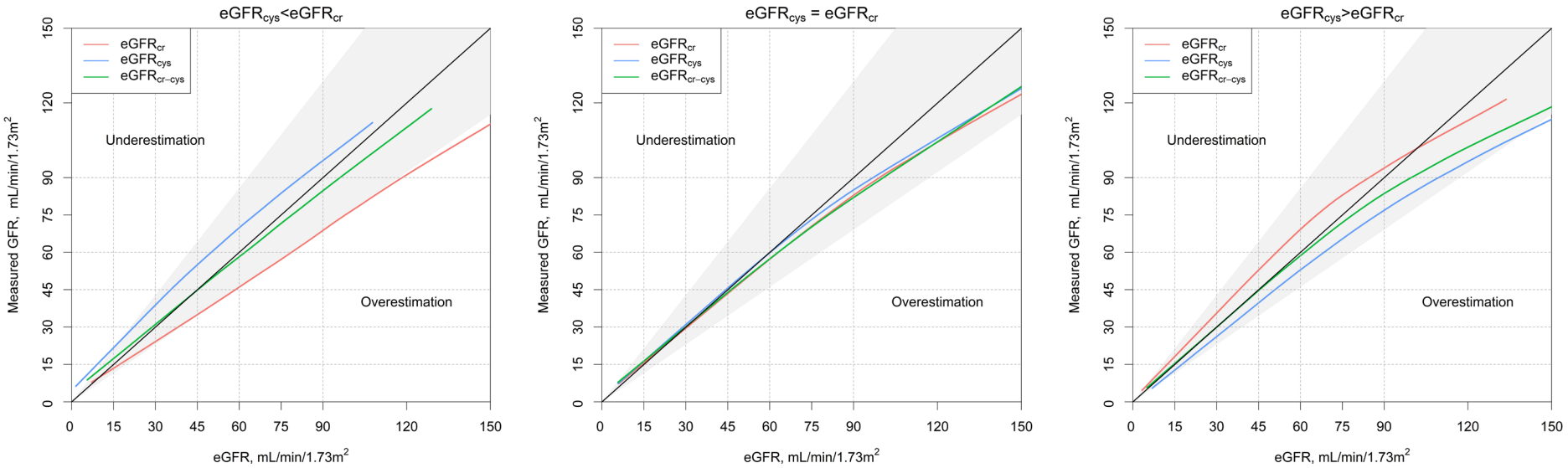


$eGFR_{cr}$ and $eGFR_{cr-cys}$ were calculated with the CKD-EPI 2021 equations, $eGFR_{cys}$ with the CKD-EPI 2012 equation.

Supplemental Figure S4. Density plot of discordance between $eGFR_{cr}$ and $eGFR_{cys}$ in the overall population.

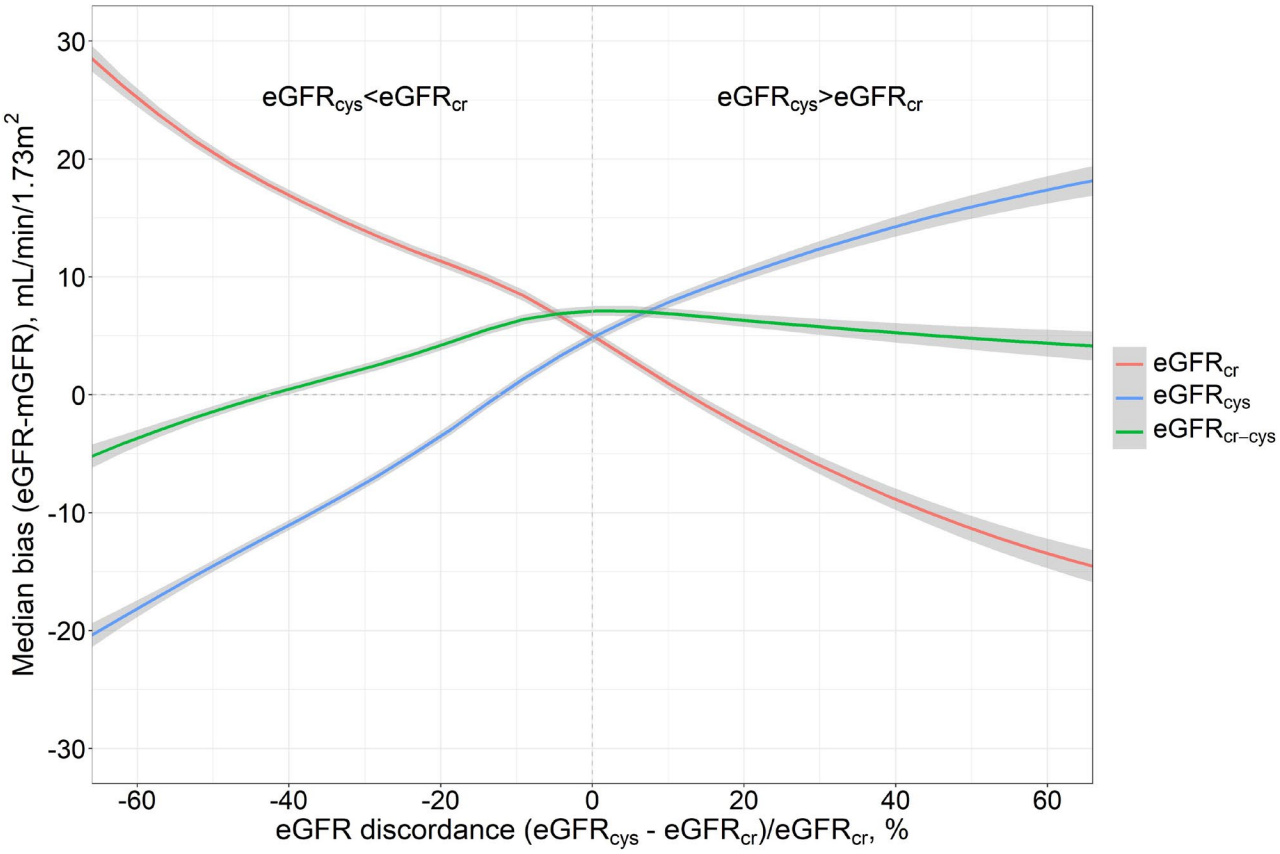


Supplemental Figure S5. Comparison of mGFR and eGFR among patients with (A) $eGFR_{cys}<eGFR_{cr}$ (B) $eGFR_{cys} \approx eGFR_{cr}$ and (C) $eGFR_{cys}>eGFR_{cr}$.

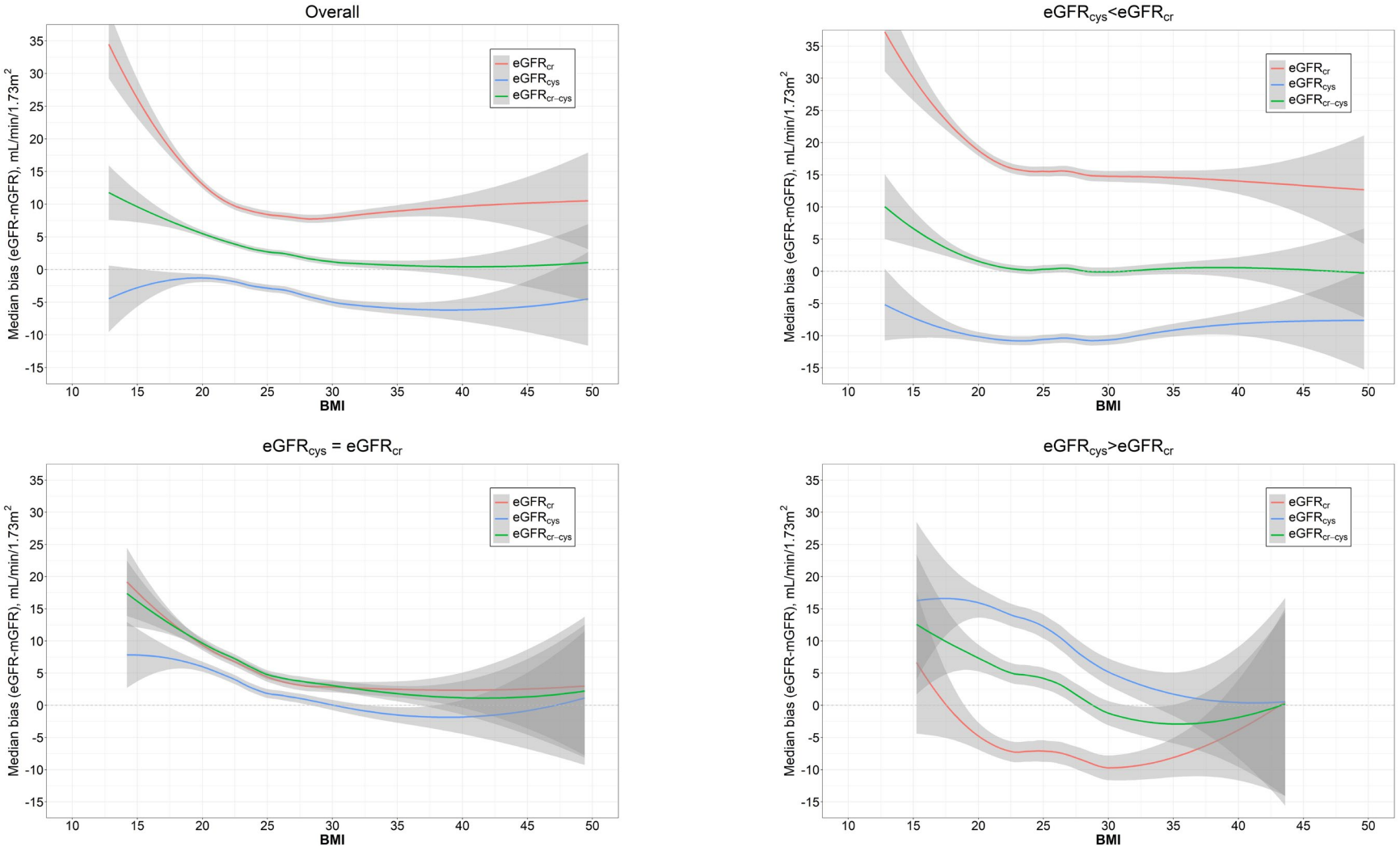


Colored lines represent Loess curves for $eGFR_{cr}$, $eGFR_{cys}$ and $eGFR_{cr\text{-}cys}$. Shaded area denotes P_{30}, i.e. eGFR within 30% of mGFR. A measurement fell within $eGFR_{cys}<eGFR_{cr}$ when $eGFR_{cys}$ was more than 20% *lower* than $eGFR_{cr}$; $eGFR_{cys} \approx eGFR_{cr}$ if the difference between eGFR values was within 20% of $eGFR_{cr}$; and within $eGFR_{cys}>eGFR_{cr}$ when $eGFR_{cys}$ was more than 20% *higher* than $eGFR_{cr}$.

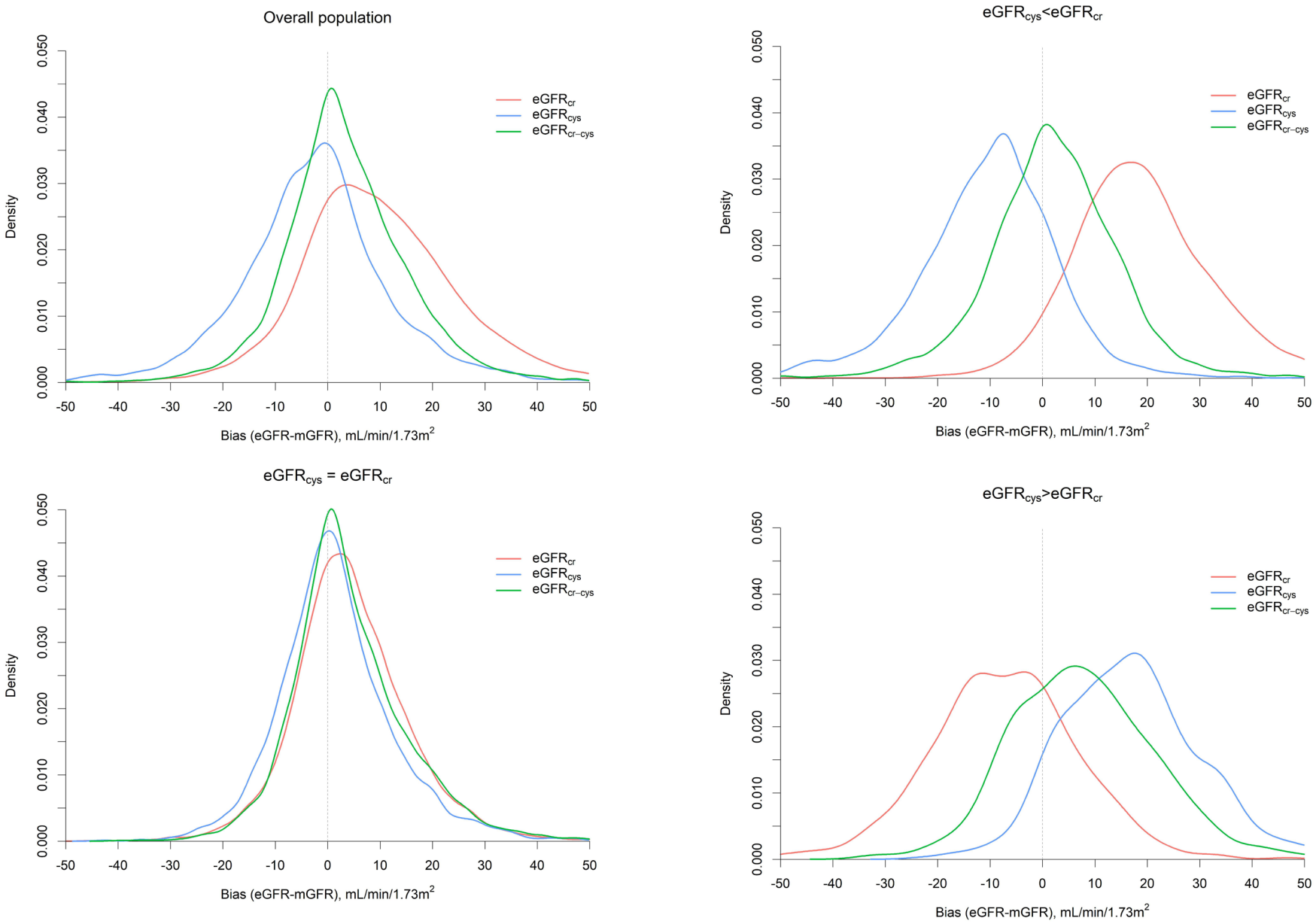
Supplemental Figure S6. Median bias for $eGFR_{cr}$, $eGFR_{cys}$ and $eGFR_{cr-cys}$ across the range of discordance between $eGFR_{cr}$ and $eGFR_{cys}$.



Supplemental Figure S7. Median bias for $eGFR_{cr}$, $eGFR_{cys}$ and $eGFR_{cr\text{-}cys}$ across the range of BMI, overall and stratified by discordance between $eGFR_{cr}$ and $eGFR_{cys}$.

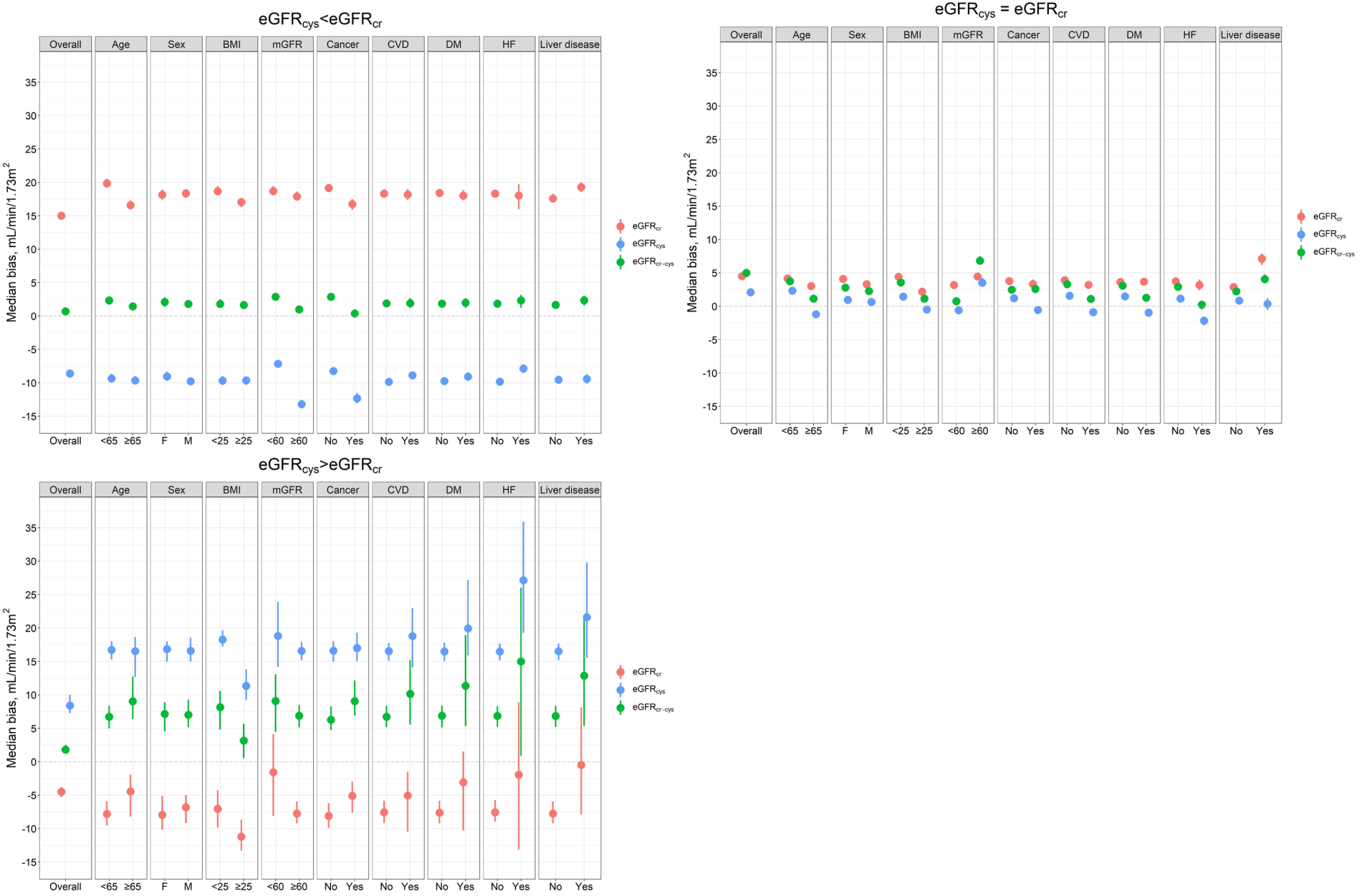


Supplemental Figure S8. Density plot of bias for the three eGFR equations stratified by absolute discordance between $eGFR_{cr}$ and $eGFR_{cys}$.



A measurement fell within $eGFR_{cys}<eGFR_{cr}$ when $eGFR_{cys}$ was more than 20% *lower* than $eGFR_{cr}$; $eGFR_{cys}\approx eGFR_{cr}$ if the difference between eGFR values was within 20% of $eGFR_{cr}$; and within $eGFR_{cys}>eGFR_{cr}$ when $eGFR_{cys}$ was more than 20% *higher* than $eGFR_{cr}$.

Supplemental Figure S9. Bias of different CKD-EPI eGFR equations across subgroups, stratified by absolute discordance between $eGFR_{cr}$ and $eGFR_{cys}$.



A measurement fell within $eGFR_{cys}<eGFR_{cr}$ when $eGFR_{cys}$ was more than 20% *lower* than $eGFR_{cr}$; $eGFR_{cys}\approx eGFR_{cr}$ if the difference between eGFR values was within 20% of $eGFR_{cr}$; and within $eGFR_{cys}>eGFR_{cr}$ when $eGFR_{cys}$ was more than 20% *higher* than $eGFR_{cr}$.