

## SUPPLEMENTARY DATA

### **Supplemental Online Material**

Supplementary Table 1. Characteristics of adults with diabetes and routine access to care who are FDA eligible for metformin (serum creatinine < 1.4 mg/dL for women and < 1.5 mg/dL for men), NHANES 1999-2010. Sample size=3269; weights used to produce US national estimates.

Supplementary Table 2. Impact of different GFR estimating equations and creatinine clearance estimates compared to serum creatinine on metformin eligibility among adults with diabetes and a routine site for health care. Data are from NHANES 1999-2002. Sample size=741; sample weights used to produce US national estimates.

Supplementary Figure 1. Trend of self-reported metformin use among individuals with diabetes and routine access to care by serum creatinine categories, NHANES 1999-2010. Sample weights are used to produce US national estimates.

Supplementary Figure 2. Trend of self-reported metformin use among individuals with diabetes and routine access to care by MDRD eGFR categories, NHANES 1999-2010. Sample weights are used to produce US national estimates.

SUPPLEMENTARY DATA

**Supplementary Table 1.** Characteristics of adults with diabetes and routine access to care who are FDA eligible for metformin (serum creatinine < 1.4 mg/dL for women and < 1.5 mg/dL for men), NHANES 1999-2010. Sample size=3269; weights used to produce US national estimates.

Characteristics	Metformin is contraindicated			Indeterminant			Metformin is likely safe			p value*** (Chi <sup>2</sup> or ANOVA)
	MDRD eGFR < 30 ml/min/1.73m <sup>2</sup>			MDRD eGFR 30 - 44 ml/min/1.73m <sup>2</sup>			MDRD eGFR ≥ 45 ml/min/1.73m <sup>2</sup>			
	study N=0	column %	national estimate, N=0	study N=53	column %	National estimate, N=271,300	study N=3216	column %	national estimate, N=16,037,300	
Male gender	0	0.0	0	0	0.0	0	1,641	51.0	8,126,700	<0.001
Age (years)										<0.001
20-39	0	0.0	0	0	0.0	0	206	6.4	1,518,300	
40-59	0	0.0	0	2	3.8	28,600	1001	31.1	6,771,500	
60-69	0	0.0	0	8	15.1	12,100	1033	32.1	4,059,900	
70+	0	0.0	0	43	81.1	230,700	976	30.4	3,687,600	
Race/ethnicity**										0.00
White	0	0.0	0	34	64.2	227,400	1260	39.2	10,167,800	
Non-Hispanic Black	0	0.0	0	2	2.8	4,700	815	25.3	2,506,100	
Hispanic	0	0.0	0	10	18.9	10,800	756	23.5	1,262,300	
Yearly family income										0.05
< \$20,000	0	0.0	0	23	50.0	100,800	931	32.0	3,506,000	
20,000-44,999	0	0.0	0	12	26.1	72,000	1039	35.7	5,130,500	
\$45,000-74,999	0	0.0	0	8	17.4	54,700	523	18.0	2,027,300	
> \$75,000	0	0.0	0	3	6.6	10,400	416	14.3	2,050,800	
Has health insurance	0	0.0	0	53	100.0	271,300	2791	87.3	14,219,900	0.01
Greater than high school education	0	0.0	0	17	50.0	117,200	1414	56.0	9,016,100	0.48
Hypertension	0	0.0	0	36	67.9	189,600	2000	62.6	9,426,400	0.43
Glycemic control										0.10
A1C < 7 % (<53 mmol/mol)	0	0.0	0	32	60.4	159,600	1703	53.1	8,730,900	
A1C 7-8 % (53-63 mmol/mol)	0	0.0	0	15	28.3	67,800	673	21.0	3,321,600	
A1c 8-9 % (64-74 mmol/mol)	0	0.0	0	2	3.8	20,000	328	10.2	1,545,200	

## SUPPLEMENTARY DATA

A1c > 9 % (>75 mmol/mol)	0	0.0	0	4	7.6	24,000	505	15.7	2,408,200	
Mean BMI kg/m <sup>2</sup> (SD)	-	-	-	30.4	5.4	-	32.0	7.1	-	0.11
Urine albumin-to-creatinine ratio										<0.001
<30 mg/g	0	0.0	0	27	57.5	163,300	2160	68.6	11,393,400	
31-299 mg/g	0	0.0	0	12	25.5	47,400	776	24.6	3,538,300	
300-1000 mg/g	0	0.0	0	5	10.6	16,400	146	4.6	556,300	
>1000 mg/g	0	0.0	0	3	6.4	12,200	68	2.2	274,900	
** "other" not shown due to small sample size but are included in all analyses.										
** Hypertension defined by average blood pressure >140/90 or self-reported anti-hypertensive use. Diabetes is self-reported or A1C > 6.5%.										
*** p-values refer to differences among actual study participants, not national estimates										

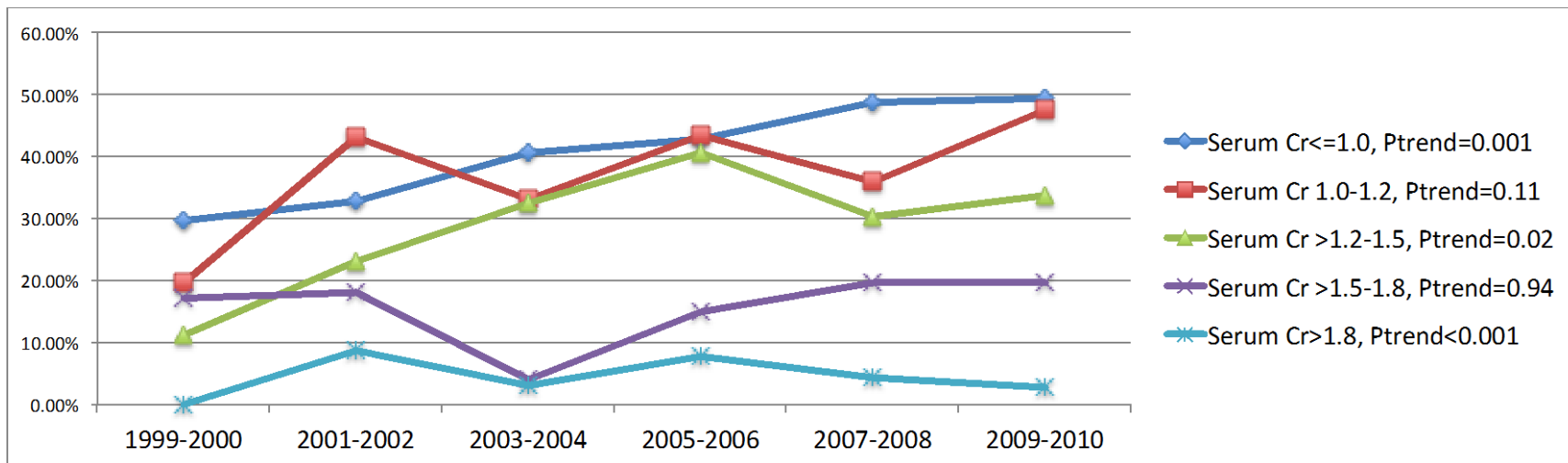
SUPPLEMENTARY DATA

**Supplementary Table 2. Impact of different GFR estimating equations and creatinine clearance estimates compared to serum creatinine on metformin eligibility among adults with diabetes and a routine site for health care. Data are from NHANES 1999-2002. Sample size=741; sample weights used to produce US national estimates.**

GFR and CrCl estimating equations	FDA ineligible for metformin by serum creatinine, estimated N (column %)	FDA eligible for metformin by serum creatinine, estimated N (column %)	Change in the estimate of individuals for whom metformin is likely safe with equations vs. sCr	FDA ineligible for metformin by serum creatinine, estimated N (column %)	FDA eligible for metformin by serum creatinine, estimated N (column %)	Change in the estimate of individuals for whom metformin safety is indeterminate with equations vs. sCr
	Metformin likely safe (eGFR or CrCl >45 ml/min)	Metformin contraindicated (eGFR or CrCl <30 ml/min)		Metformin safety indeterminate (eGFR or CrCl 30-44 ml/min)		
CKD-EPI <sub>Cr</sub> ml/min/1.73m <sup>2</sup>	86900 (7.8%)	0	+86,883	538000 (48.5%)	246700 (1.7%)	+784,809
MDRD ml/min/1.73m <sup>2</sup>	104200 (9.4%)	0	+104,248	614900 (55.4%)	209900 (1.42%)	+824,844
CKD-EPI <sub>Cys</sub> ml/min/1.73m <sup>2</sup>	178200 (16.0%)	64300 (0.4%)	+113,943	237900 (21.4%)	738200 (5.3%)	+976,160
Cockcroft-Gault ml/min*	101400 (100%)	179,000 (1.3%)	+834,740	0	1635900 (11.6%)	+1,635,983

SUPPLEMENTARY DATA

**Supplementary Figure 1. Trend of self-reported metformin use among individuals with diabetes and routine access to care by serum creatinine categories, NHANES 1999-2010. Sample weights are used to produce US national estimates.**



SUPPLEMENTARY DATA

**Supplementary Figure 2. Trend of self-reported metformin use among individuals with diabetes and routine access to care by MDRD eGFR categories, NHANES 1999-2010. Sample weights are used to produce US national estimates.**

