

Implementation of CKD-EPI 2021 Creatinine-based Estimated Glomerular Filtration Rate (eGFR)

Date: July 22, 2022

Dear Regional Pathology Services Clients,

On July 27, 2022, we will replace the current race-based creatinine eGFR calculation with the CKD-EPI 2021 non-Race based eGFR equation (shown below)¹. This change will affect all creatinine-based eGFR calculations for the following tests: CMET, BMET, CREAB and RENFP.

$$eGFR_{cr} = 142 \times \min(S_{cr}/\kappa, 1)^{\alpha} \times \max(S_{cr}/\kappa, 1)^{-1.200} \times 0.9938^{Age} \times 1.012 \text{ [if female]}$$

S_{cr} = standardized serum creatinine in mg/dL

κ = 0.7 (females) or 0.9 (males)

α = -0.241 (female) or -0.302 (male)

$\min(S_{cr}/\kappa, 1)$ is the minimum of S_{cr}/κ or 1.0

$\max(S_{cr}/\kappa, 1)$ is the maximum of S_{cr}/κ or 1.0

Age (years)

The American Society of Nephrology and the National Kidney Foundation have endorsed the immediate usage of the CKD-EPI Creatinine-based eGFR equations in all labs reporting eGFR.

1. New Creatinine- and Cystatin C–Based Equations to Estimate GFR without Race L.A. Inker, N.D. Eneanya, J. Coresh, et. al., Chronic Kidney Disease Epidemiology Collaboration. New Creatinine- and Cystatin C–Based Equations to Estimate GFR without Race. N. Engl. J. Med. 2021;1737-1749

Interface changes:

BMET						
Remove result code GFR and GFRB						
OrderCode	OrderName	ResultCode	ResultName	ResultUnits	RESULT LOINC	CPT
BMET	BASIC METABOLIC PANL	NA	SODIUM	mmol/L	2951-2	80048
BMET	BASIC METABOLIC PANL	K	POTASSIUM	mmol/L	2823-3	
BMET	BASIC METABOLIC PANL	CL	CHLORIDE	mmol/L	2075-0	
BMET	BASIC METABOLIC PANL	CO2	CARBON DIOXIDE	mmol/L	2028-9	
BMET	BASIC METABOLIC PANL	AG	ANION GAP	mmol/L	33037-3	
BMET	BASIC METABOLIC PANL	GLUC	GLUCOSE TIMED/RANDOM	mg/dL	2345-7	

BMET	BASIC METABOLIC PANL	BUN	UREA NITROGEN	mg/dL	3094-0	
BMET	BASIC METABOLIC PANL	CREA	CREATININE	mg/dL	2160-0	
BMET	BASIC METABOLIC PANL	BU CR	BUN/CREATININE RATIO	mgUN/mgCR	3097-3	
BMET	BASIC METABOLIC PANL	OSMC	OSMOLALITY / CALC	mOsm/kg	18182-6	
BMET	BASIC METABOLIC PANL	CA	CALCIUM	mg/dL	17861-6	
BMET	BASIC METABOLIC PANL	EGFR CR	Estimated GFR (CREA)	mL/min/1.73 m2	98979-8	
CMET						
Remove result code GFR and GFRB						
OrderCode	OrderName	ResultCode	ResultName	ResultUnits	RESULT LOINC	CPT
CMET	COMP METABOLIC PANEL	ASTX	AST	U/L	1920-8	80053
CMET	COMP METABOLIC PANEL	ALKPX	ALKALINE PHOSPHATASE	U/L	6768-6	
CMET	COMP METABOLIC PANEL	BILTX	BILIRUBIN TOTAL	mg/dL	1975-2	
CMET	COMP METABOLIC PANEL	CAX	CALCIUM	mg/dL	17861-6	
CMET	COMP METABOLIC PANEL	TPX	PROTEIN TOTAL	g/dL	2885-2	
CMET	COMP METABOLIC PANEL	ALBX	ALBUMIN	g/dL	1751-7	
CMET	COMP METABOLIC PANEL	GLUFX	GLUCOSE/RANDOM	mg/dL	2345-7	
CMET	COMP METABOLIC PANEL	BUNX	UREA NITROGEN	mg/dL	3094-0	
CMET	COMP METABOLIC PANEL	CREAX	CREATININE	mg/dL	2160-0	
CMET	COMP METABOLIC PANEL	BU CRX	BUN/CREATININE RATIO	mgUN/mgCR	3097-3	
CMET	COMP METABOLIC PANEL	NAX	SODIUM	mmol/L	2951-2	
CMET	COMP METABOLIC PANEL	KX	POTASSIUM	mmol/L	2823-3	
CMET	COMP METABOLIC PANEL	CLX	CHLORIDE	mmol/L	2075-0	
CMET	COMP METABOLIC PANEL	OSMCX	OSMOLALITY / CALC	mOsm/kg	18182-6	
CMET	COMP METABOLIC PANEL	CO2	CARBON DIOXIDE	mmol/L	2028-9	
CMET	COMP METABOLIC PANEL	AGX	ANION GAP	mmol/L	33037-3	
CMET	COMP METABOLIC PANEL	ALT	ALT	U/L	1742-6	
CMET	COMP METABOLIC PANEL	EGFR CR	Estimated GFR (CREA)	mL/min/1.73 m2	98979-8	
CREAB						
Remove result code GFR and GFRB						
OrderCode	OrderName	ResultCode	ResultName	ResultUnits	RESULT LOINC	CPT
CREAB	CREATININE	CREA	CREATININE	mg/dL	2160-0	82565
CREAB	CREATININE	EGFR CR	Estimated GFR (CREA)	mL/min/1.73 m2	98979-8	
RENFP						
Remove result code GFR and GFRB						
OrderCode	OrderName	ResultCode	ResultName	ResultUnits	RESULT LOINC	CPT
RENFP	RENAL FUNCTION PANEL	NA	SODIUM	mmol/L	2951-2	80069
RENFP	RENAL FUNCTION PANEL	K	POTASSIUM	mmol/L	2823-3	
RENFP	RENAL FUNCTION PANEL	CL	CHLORIDE	mmol/L	2075-0	

RENFP	RENAL FUNCTION PANEL	CO2	CARBON DIOXIDE	mmol/L	2028-9	
RENFP	RENAL FUNCTION PANEL	AG	ANION GAP	mmol/L	33037-3	
RENFP	RENAL FUNCTION PANEL	GLUC	GLUCOSE TIMED/RANDOM	mg/dL	2345-7	
RENFP	RENAL FUNCTION PANEL	BUN	UREA NITROGEN	mg/dL	3094-0	
RENFP	RENAL FUNCTION PANEL	CREA	CREATININE	mg/dL	2160-0	
RENFP	RENAL FUNCTION PANEL	BUCR	BUN/CREATININE RATIO	mgUN/mgCR	3097-3	
RENFP	RENAL FUNCTION PANEL	OSMC	OSMOLALITY / CALC	mOsm/kg	18182-6	
RENFP	RENAL FUNCTION PANEL	CA	CALCIUM	mg/dL	17861-6	
RENFP	RENAL FUNCTION PANEL	ALB	ALBUMIN	g/dL	1751-7	
RENFP	RENAL FUNCTION PANEL	PO4	PHOSPHORUS	mg/dL	2777-1	
RENFP	RENAL FUNCTION PANEL	EGFRCR	Estimated GFR (CREA)	mL/min/1.73 m2	98979-8	

If you have questions or concerns about this change please contact; Samuel J. Pirruccello, M.D., page:

888-1640, phone: 559-7707

If you have any questions or issues with these changes please contact client services at 402-559-6420 and ask to speak with one of the client coordinators.
