List of formulas based on creatinine and/or cystatin-C.

A.- Creatinine-based formulas.

Formula	Gender	Algorithm
Effersøe*[1] (1957)	M	$10^{-1.09*Log(Cr)+1.9}$
	F	$10^{-1.06*Log(Cr)+1.78}$
Edwards-Whyte[2] (1959)	M	(94.3/Cr)-1.8
	F	(69.9/Cr)-2.2
Jelliffe-1* [3] (1971)	M	(100/Cr)-12
	F	(80/Cr)-7
Mawer [4] (1972)	M	[weight*(29.3-0.203*Age)*(1-0.03*Cr)]/14.4*Cr
	F	[weight*(25.3-0.175*Age)*(1-0.03*Cr)]/14.4*Cr
Jelliffe-2 * [5] (1973)		98-16*(Age-20)/20/Cr (*0.9 if female)
Cockcroft-Gault [6] (1976)		[(140-Age)*weight] /72*Cr (*0.85 if female)
Bjornsson [7] (1979)	M	[0.07* weight *(27-Age*0.173)]/ Cr
	F	[0.07* weight *(25-Age*0.175)]/Cr
Mogensen [8] (1980)		[(10000/(Cr*88.4))-14]/0.9
Hull [9] (1981)		[weight *((145-Age)/Cr-3)]/70 (*0.85 if female)
Gates * [10] (1985)	M	$89.4*Cr^{-1.2}+0.447*Cr^{-1.1}*(55-Age)$
	F	$60*Cr^{-1.1}+0.3*Cr^{-1.1}*(56-Age)$
Walser *[11] (1993)	M	0.096* weight -0.103*age+ (7.57/(Cr*0.0884)) – 6.66
	F	0.08* weight -0.08*age+(6.05/(Cr*0.0884)) - 4.81

Formula	Gender	Algorithm
Davis-Chandler [12] (1996)		(140-Age)/Cr (*0.85 if female)
Baracskay [13] (1997)		0.5* [(100/Cr)+88-Age]
Martin [14] (1998)		(163*Weight*(1-0.00496*Age) (*0.748 if female))/(Cr*0.0884*1000)
aMDRD * [15] (2000)		175*Cr $^{-1.154}$*Age $^{-0.203}$ (*0.742 if female) (*1.212 if black)
Wright [16] (2001)		(6580-38.8*Age/(Cr*88.4))*BSA (*0.832 if female)
Rule * [17] (2004) (MCQ)		e^{x} **x**=1.911+(5.249/Cr)-(2.114/Cr^2)-0.00686*Age [-0.205 if female] *(if Cr<0.8 use Cr=0.8)*
Sobh [18] (2005)		0.014*Weight$^{0.54}$ *(Height*100)$^{0.4}$ * ((140-Age)/Cr)
Virga [19] (2007)	M	[(69.4-0.59*Age+0.79*Weight)/Cr)]-3.0
	F	[(57.3-0.37*Age+0.51*Weight)/Cr]-2.9

Formula	Gender	Algorithm
CHUQ [20]* (2009)		e^{x} **x**=10-1.16*Ln(Cr*88) - 0.000084*Age^2 –(0.319 if female)
FAS* [21] *(2016)* *Table based formula*	*See FAS table 1 for Q-values*	107.3/(Cr/Q) *if age between 2 and 40*
		107.3/(Cr/Q)*0.988$^{(Age-40)}$ *if age over 40*

Formula	Race	Gender	Creatinine	Algorithm
CKD-EPI*[22] (2009)	Black	M	Cr≤0.9	163*(Cr/0.9)$^{-0.411}$ *0.993^{Age}
			Cr>0.9	163*(Cr/0.9)$^{-1.209}$ *0.993^{Age}
		F	Cr≤0.7	166*(Cr/0.7)$^{-0.329}$ *0.993^{Age}

			Cr>0.7	$166*(Cr/0.7)^{-1.209}*0.993^{Age}$
	Non-Black	M	Cr≤0.9	$141*(Cr/0.9)^{-0.411}*0.993^{Age}$
			Cr>0.9	$141*(Cr/0.9)^{-1.209}*0.993^{Age}$
		F	Cr≤0.7	$144*(Cr/0.7)^{-0.329}*0.993^{Age}$
			Cr>0.7	$144*(Cr/0.7)^{-1.209}*0.993^{Age}$

Formula	**Algorithm**
FAS_cr *[23] (2017)	$\frac{107.3}{\frac{SCr}{Qcrea}} \times \left[0.988^{(Age-40)}\ when\ Age > 40\ years\right]$ Qcrea=0.9 if male Qcrea=0.7 if female

Formula**	**Gender**	**Creatinine**	**Algorithm**
Lund-Malmö [24] (with LBM) (2009)			$e^{X-0.00587*Age+0.00977*LBM}$
	Cr < 150 µmol/L		**X** = 4.95 - 0.0110 *Cr
	Cr ≥150 µmol/L		**X** = 8.58 + 0.0005*Cr - 1.08*Ln(Cr)
Lund-Malmö [24]	Male		$e^{X-0.0124*Age+0.339*Ln(Age)}$
	Female		$e^{X-0.0124*Age+0.339*Ln(Age)-0.226}$
	Cr <150 µmol/L		**X** = 4.62–0.0112 *Cr
	Cr ≥150 µmol/L		**X** = 8.17 + 0.0005*Cr-1.07*Ln(Cr)
Lund-1 [24]	Male		$e^{X-0.0168*Age+0.523*Ln(Age)}$
	Female		$e^{X-0.0168*Age+0.523*Ln(Age)-0.208}$
	Cr <150 µmol/L		**X** = 4.12 - 0.0111 *Cr
	Cr ≥150 µmol/L		**X** = 6.51 - 0.0004*Cr - 0.808*Ln(Cr)

Lund-2 [24] (with LBM)			$e^{\mathbf{X}-0.00705*Age+0.0110*LBM}$
	Cr <150 µmol/L		**X** =4.93 - 0.0108 *Cr
	Cr ≥150 µmol/L		**X** =7.78 - 0.00005*Cr - 0.902*Ln(Cr)
LBM Calculation	Male		1.10*Weight - 120*(Weight/Height)^2
	Female		1.07*Weight - 148*(Weight/Height)^2
Lund-Malmö [25] (Revised) (2011) (**LMr**)			$e^{\mathbf{X}}$–0.0158*Age+0.438*Ln(Age)
	Male	Cr <180 umol/L	**X** =2.56+0.00968 *(180–Cr)
		Cr ≥180 umol/L	**X** =2.56–0.926 * Ln(Cr/180)
	Female	Cr <150 umol/L	**X** =2.50+0.0121 * (150–Cr)
		Cr ≥ 150 umol/L	**X** =2.50–0.926 * Ln(Cr/150)
Lund-Malmö [25] (with LBM) (Revised) (2011)			$e^{\mathbf{X}-0.007*Age+0.00694*LBM}$
	Male	Cr <180 umol/L	**X** =3.37+0.00968 *(180–Cr)
		Cr ≥180 umol/L	**X** =3.37–0.926 * Ln(Cr/180)
	Female	Cr <150 umol/L	**X** =3.43+0.0121 * (150–Cr)
		Cr ≥ 150 umol/L	**X** =3.43–0.926 * Ln(Cr/150)
Note: Serum creatinine (Cr) for all Lund formulas are expressed in µmol/L **All LM formulas are expressed to report GFR scaled to 1.73*m^2			

Cr; serum creatinine (mg/dl); Age (years); Height (cm); Weight (kg); BUN. Blood Urea Nitrogen (mg/dl). BSA(Body Surface Area) (m^2) calculated using DuBois and DuBois formula SA=Weight$^{0.425}$*(100*Height)$^{0.725}$*0.007184].

Note: ***** formulas expressed to report GFR scaled to 1.73*m^2

Mathematical expression **Ln** refers to the Natural Logarithm (base number ***e*** logarithm). **Log** refers to the base **10** logarithm.

B.- Cystatin-C-based formulas.

Formula	Algorithm
Le Bricon * [26] (2000)	(78/Cy)+4
Tan * [27] (2002)	(87.1/Cy)-6.87
Hoek * [28] (2003)	80.35/Cy-4.32
Larsson * [29] (2004)	$77.239*Cy^{-1.2623}$
Perkins * [30] (2005)	100/Cy
Örebro (DAKO) * [31] (2005)	(124/Cy)-22.3
Grubb-2005 * [32] (2005)	$84.69*Cy^{-1.680}$ (*1.384 if <14 years)
Rule Cy * [33] (2006) (MCQ_cy)	$66.8*Cy^{-1.3}$
MacIsaac * [34] (2006)	(86.7/Cy)-4.2
Arnal-Dade * [35] (2006)	$74.835/Cy^{1.333}$
Jonsson * [36] (2007)	$79.901*Cy^{-1.4389}$
Stevens-1 * [37] (2008)	$76.7*Cy^{-1.19}$
Stevens-2 * [37] (2008)	$127.7*Cy^{-1.17}*Age^{-0.13}$ (*0.91 if female)(*1.06 if black)
Tidman * [38] (2008)	(100/Cy)-14
Grubb-2009 [39] (2009)	$99.19*Cy^{-1.713}$(*0.823 if female)
Hojs * [40] (2011)	$90.63*Cy^{-1.192}$
Grubb-2014*[41] (2014) (CAPA)	$130.Cy^{-1.069}*Age^{-0.117}-7$

Formula	Gender	Range	Algorithm
CKD-EPI_cy * [42] (2011)	Male	Cy≤0.8	$133*(Cy/0.8)^{-0.499}*0.996^{Age}$
		Cy>0.8	$133*(Cy/0.8)^{-1.328}*0.996^{Age}$
	Female	Cy≤0.8	$133*(Cy/0.8)^{-0.499}*0.996^{Age}*0.932$
		Cy>0.8	$133*(Cy/0.8)^{-1.328}*0.996^{Age}*0.932$

Formula	Algorithm
FAS_cy *[23] (2017)	$\frac{107.3}{\frac{ScysC}{QcysC}} \times \left[0.988^{(Age-40)}\ when\ Age > 40\ years\right]$ QCy=0.82 if Age<70 years QCy=0.95 if Age≥70 years

Cr; serum creatinine (mg/dl); Age (years);

Height (cm);

Weight (kg);

BUN. Blood Urea Nitrogen (mg/dl).

Cy: Serum cystatin-c (mg/L);

BSA (Body Surface Area) (m^2) calculated using DuBois and DuBois formula:

SA=$Weight^{0.425}*(100*Height)^{0.725}*0.007184$].

Note: ***** formulas expressed to report GFR scaled to $1.73*m^2$

A.- Creatinine and Cystatin-C-based formulas.

Formula	Algorithm			
Ma [43] * (2007)	169*Cr $^{-0.608}$ * Cy $^{-0.63}$ *Age $^{-0.157}$ (*0.83 if female)			
Stevens * [37] (2008)	177.6*(Cr)$^{-0.65}$*Cy $^{-0.57}$*Age$^{-0.2}$ (*0.82 if female)(*1.11 if black)			
		Cr	**Cy**	**Algorithm**
CKD-EPI_crcy * [42] (2012)	Male	Cr≤0.9	Cy≤0.8	135*(Cr/0.9)$^{-0.207}$*(Cy/0.8)$^{-0.375}$*0.995^{Age} (*1.08 if black)
			Cy>0.8	135*(Cr/0.9)$^{-0.207}$*(Cy/0.8)$^{-0.711}$*0.995^{Age} (*1.08 if black)
		Cr>0.9	Cy≤0.8	135*(Cr/0.9)$^{-0.601}$*(Cy/0.8)$^{-0.375}$*0.995^{Age} (*1.08 if black)
			Cy>0.8	135*(Cr/0.9)$^{-0.601}$*(Cy/0.8)$^{-0.711}$*0.995^{Age} (*1.08 if black)
	Female	Cr≤0.7	Cy≤0.8	130*(Cr/0.7)$^{-0.248}$*(Cy/0.8)$^{-0.375}$*0.995^{Age} (*1.08 if black)
			Cy>0.8	130*(Cr/0.7)$^{-0.248}$*(Cy/0.8)$^{-0.711}$*0.995^{Age} (*1.08 if black)
		Cr>0.7	Cy≤0.8	130*(Cr/0.7)$^{-0.601}$*(Cy/0.8)$^{-0.375}$*0.995^{Age} (*1.08 if black)
			Cy>0.8	130*(Cr/0.7)$^{-0.601}$*(Cy/0.8)$^{-0.711}$*0.995^{Age} (*1.08 if black)

Formula	Algorithm
FAS_crcy *[23] (2017)	$\frac{107.3}{\alpha \times \frac{SCr}{Qcrea} + (1-\alpha) \times \frac{CysC}{Qcysc}} \times \left[0.988^{(Age-40)}\ when\ Age > 40\ years\right]$ α=0.5 Qcrea=0.9 if male Qcrea=0.7 if female QCy=0.82 if Age<70 years QCy=0.95 if Age≥70 years

Cr; serum creatinine (mg/dl); Age (years);

Height (cm);

Weight (kg);

BUN. Blood Urea Nitrogen (mg/dl).

Cy: Serum cystatin-c (mg/L);

BSA (Body Surface Area) (m^2) calculated using DuBois and DuBois formula:

$SA=Weight^{0.425}*(100*Height)^{0.725}*0.007184]$.

Note: ***** formulas expressed to report GFR scaled to $1.73*m^2$

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