

Supplement

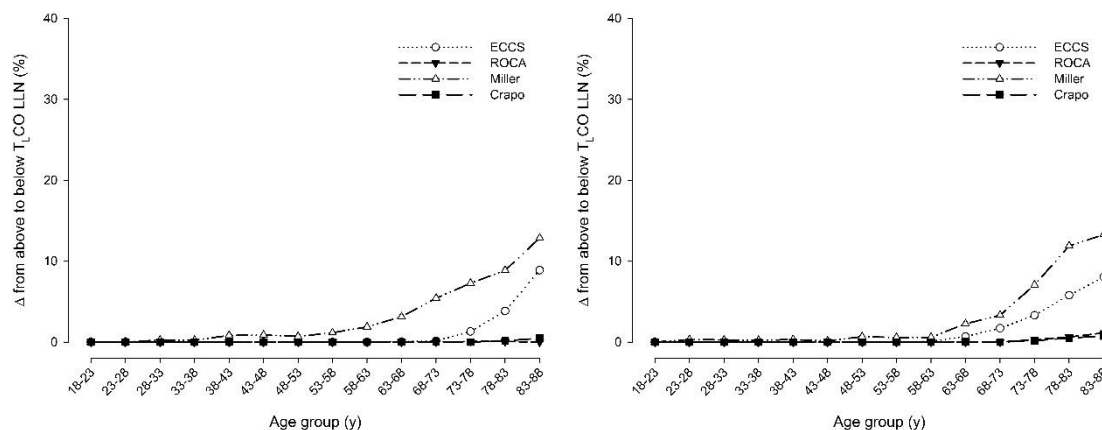
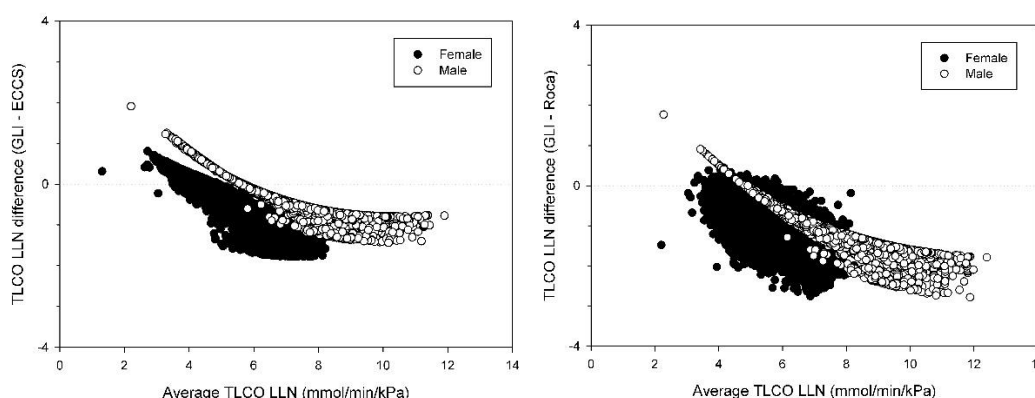


Figure S1: The proportion of females (a) and males (b) who changed from within the normal range to an abnormally low T_LCO result, when moving from each of the older equations to the GLI equations.

Table S1: Levels of agreement for a reduced T_LCO (below LLN) comparing GLI equations to each of the older reference equations, limited to the age range covered by each of the older equations.

		Reduced T_LCO % raw agreement (kappa)				
Equation vs GLI2017		all	females	Age range (yrs)	males	Age range (yrs)
Adults	Miller	94.7 (0.88)	95.2 (0.89)	18 - 85	94.3 (0.88)	18 - 85
	ECCS	88.5 (0.75)	84.1 (0.66)	18 - 70	93.0 (0.85)	18 - 70
	Roca	75.0 (0.52)	68.7 (0.42)	20 - 70	81.3 (0.63)	20 - 70
	Crapo	72.2 (0.48)	67.0 (0.40)	18 - 84	76.8 (0.56)	18 - 85
Children	Kim	98.1 (0.96)	98.6 (0.97)	5 - 18	97.6 (0.95)	5 - 18
	Cotes	83.0 (0.67)	81.5 (0.64)	8-16	84.2 (0.69)	8 - 16



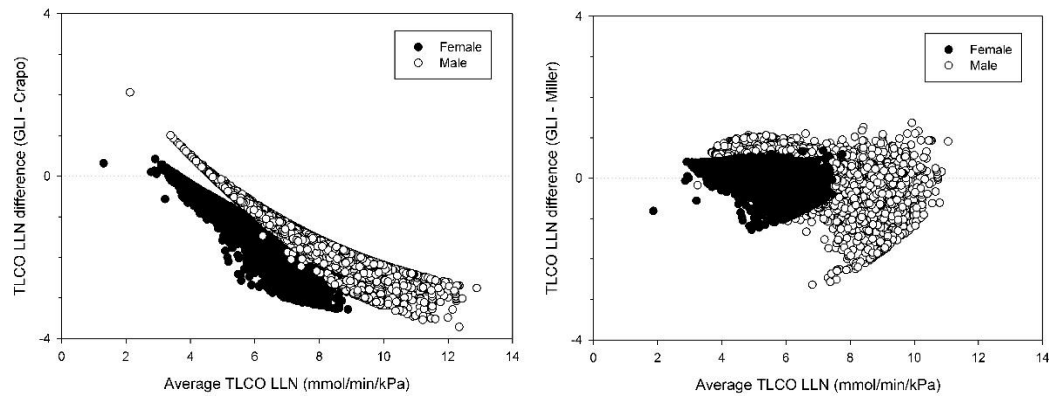


Figure S2: Bland-Altman plot comparing the T_LCO lower limit of normal for each of the older equations (a – ECCS, b - Roca, c – Crapo, d – Miller) with that of GLI for all adults.

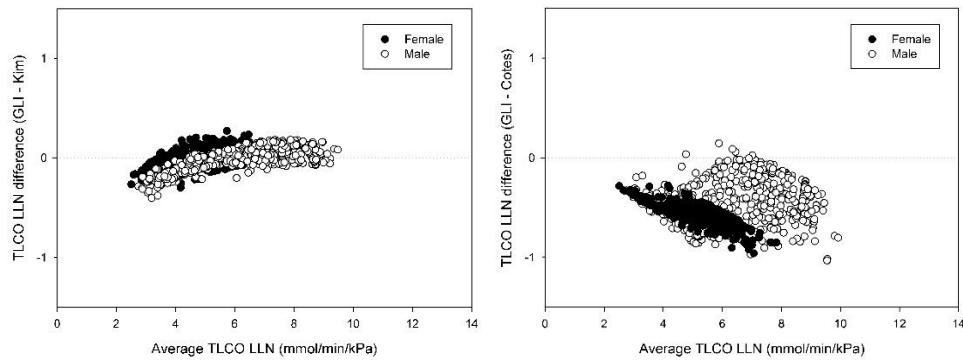


Figure S3: Bland-Altman plot comparing the T_LCO lower limit of normal for each of the older equations (a – Kim, b - Cotes) with that of GLI for all children.

Table S2: Median (95% confidence interval) of difference between the T_LCO LLN (mmol/min/kPa) for older equations and GLI for both males and females.

	female	male
Miller ($\geq 18y$)	0.11 (-0.36, 0.37)	0.17 (-0.58, 0.64)
Roca ($\geq 18y$)	-1.11 (-1.78, -0.29)	-0.95 (-1.61, -0.09)
ECCS ($\geq 18y$)	-0.42 (-1.33, 0.20)	-0.29 (-0.80, 0.44)
Crapo ($\geq 18y$)	-1.19 (-2.27, -0.40)	-1.32 (-2.27, -0.23)
Kim ($< 18y$)	0.01 (-0.14, 0.15)	-0.01 (-0.22, 0.15)
Cotes ($< 18y$)	-0.58 (-0.77, -0.39)	-0.43 (-0.79, -0.08)

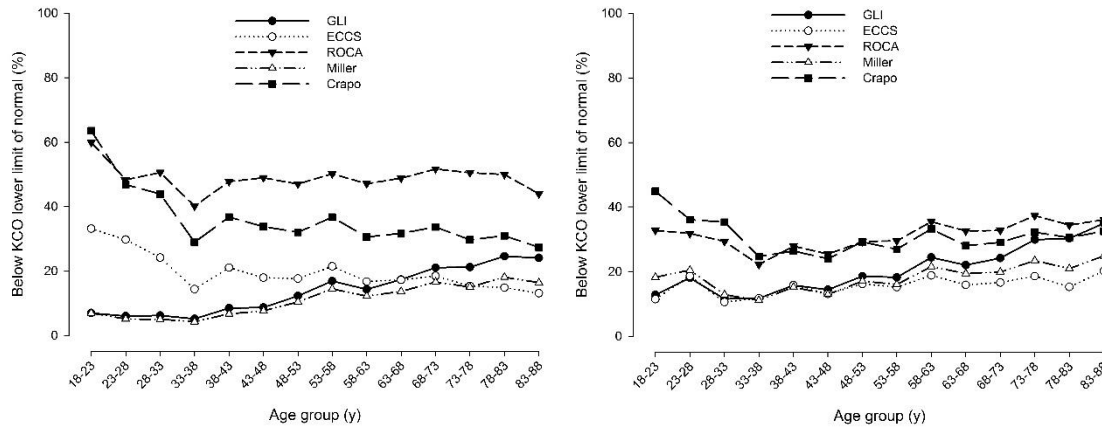


Figure S4: Mean KCO lower limit of normal (LLN) for each of the adult reference equations as a function of age, separated into females (a) and males (b).

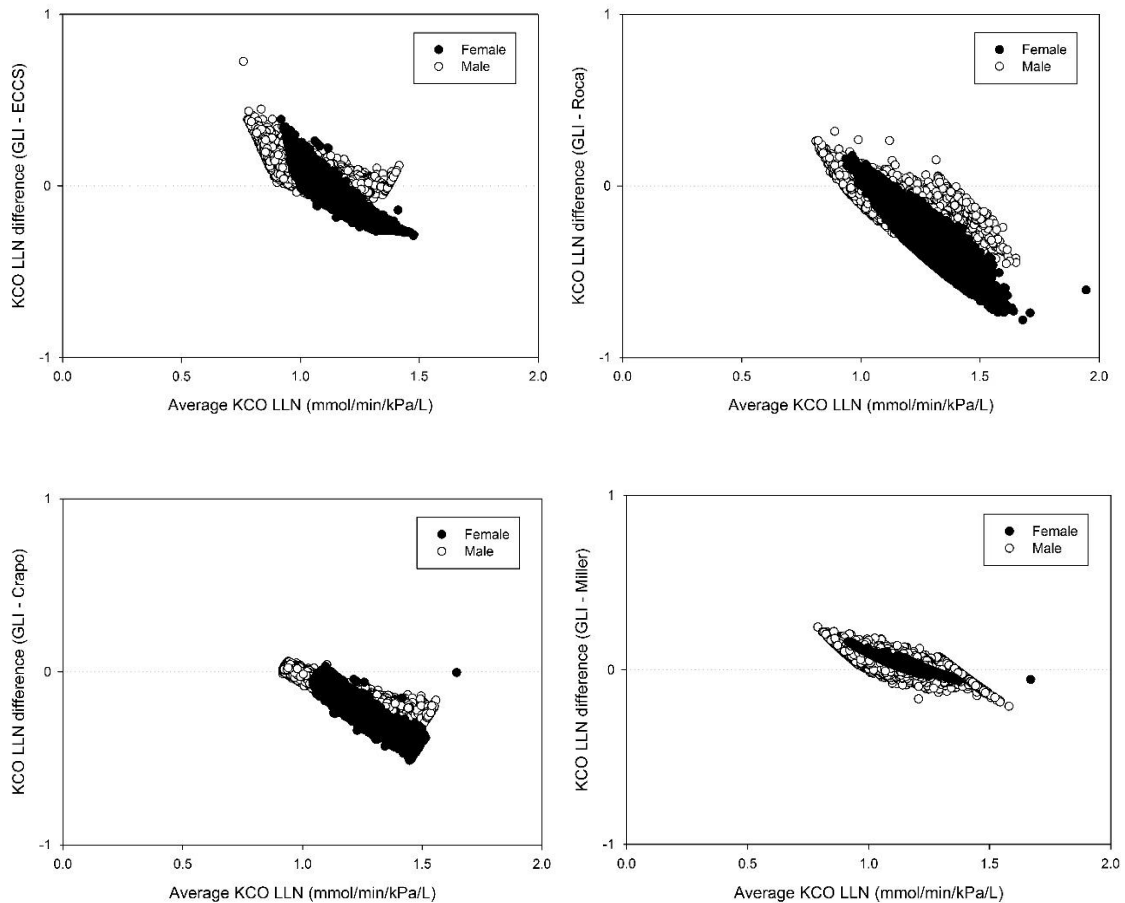


Figure S5: Bland-Altman plots comparing the lower limit of normal for KCO for each of the older equations (a - ECCS, b – Roca, c – Crapo, d – Miller) with that of GLI for all adults.

Table S3: Median (95% confidence interval) of difference between the KCO mmol/min/kPa/L) and VA LLN (L) for GLI compared to older equations for both adult males and females.

Adult		Miller	ECCS	Roca	Crapo
KCO LLN	Female	0.05 (0.01, 0.10)	-0.02 (-0.23, 0.16)	-0.34 (-0.57, -0.07)	-0.19 (-0.38, -0.05)
	Male	0.05 (-0.04, 0.13)	0.08 (-0.01, 0.23)	-0.13 (-0.38, 0.04)	-0.08 (-0.20, 0.01)
VA LLN	Female	-0.10 (-0.29, 0.07)	-0.08 (-0.28, 0.08)	0.11 (-0.11, 0.42)	--
	Male	-0.20 (-0.42, 0.02)	-0.70 (-0.93, -0.48)	-0.02 (-0.49, 0.59)	--

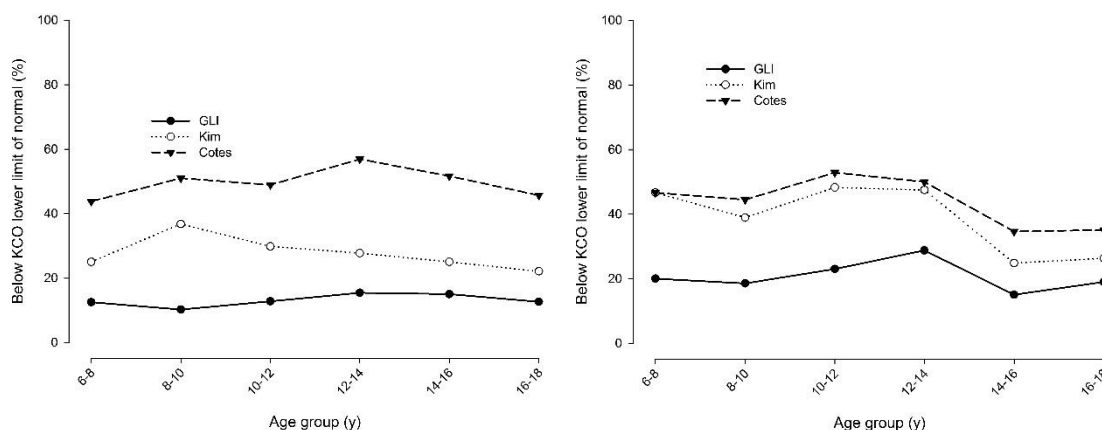


Figure S6: Mean KCO lower limit of normal (LLN) for each of the paediatric reference equations as a function of age, separated into females (a) and males (b).

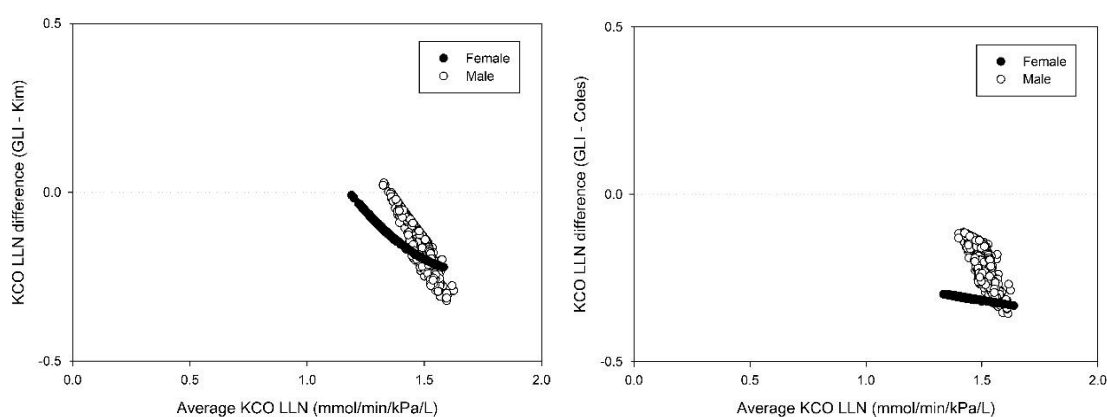


Figure S7: Bland-Altman plots comparing the lower limit of normal for KCO for each of the older equations (a - Kim, b - Cotes) with that of GLI for all children.

Table S4: Median (95% confidence interval) of difference between the KCO (mmol/min/kPa/L) and VA LLN (L) for GLI compared to older equations for both males and female children.

Children		Kim	Cotes
KCO LLN	Female	-0.11 (-0.20, -0.06)	-0.31 (-0.32, -0.30)
	Male	-0.13 (-0.27, -0.02)	-0.16 (-0.30, -0.12)
VA LLN	Female	0.04 (-0.06, 0.09)	--
	Male	0.31 (0.14, 0.36)	--

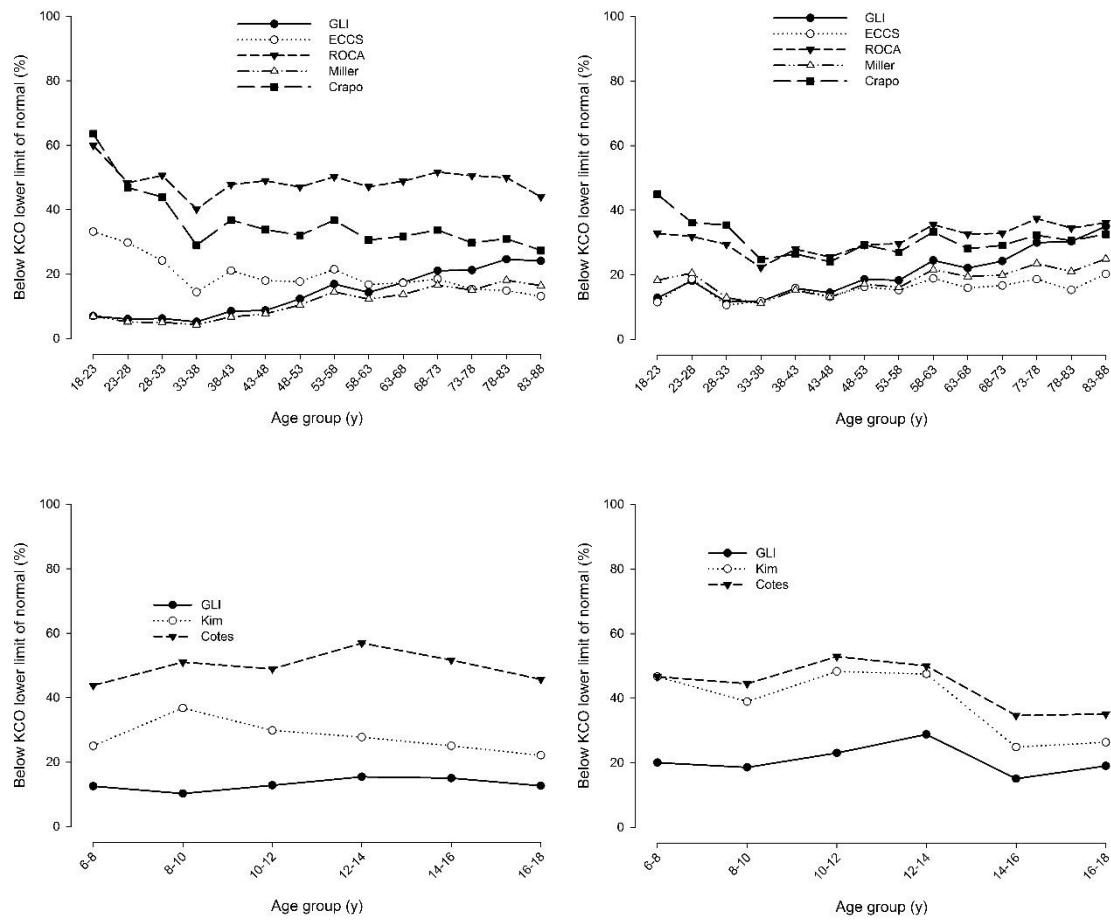


Figure S8: The proportion of adult females (a), adult males (b), female children (c) and male children (d) with a KCO below the lower limit of normal (LLN) using each reference equations, as a function of age.

Table S5: Levels of agreement for a reduced KCO (below LLN) comparing GLI equations to each of the older reference equations.

Equation vs GLI2017		Reduced KCO % raw agreement (kappa)		
		all	females	males
Adult	Miller	95.9 (0.86)	96.5 (0.86)	95.5 (0.87)
	Roca	78.8 (0.52)	67.0 (0.33)	89.5 (0.74)
	ECCS	93.3 (0.78)	93.5 (0.77)	93.0 (0.78)
	Crapo	88.0 (0.69)	82.8 (0.56)	92.8 (0.82)
Children	Kim	86.0 (0.63)	87.0 (0.60)	85.2 (0.64)
	Cotes	71.6 (0.40)	63.4 (0.27)	78.5 (0.52)

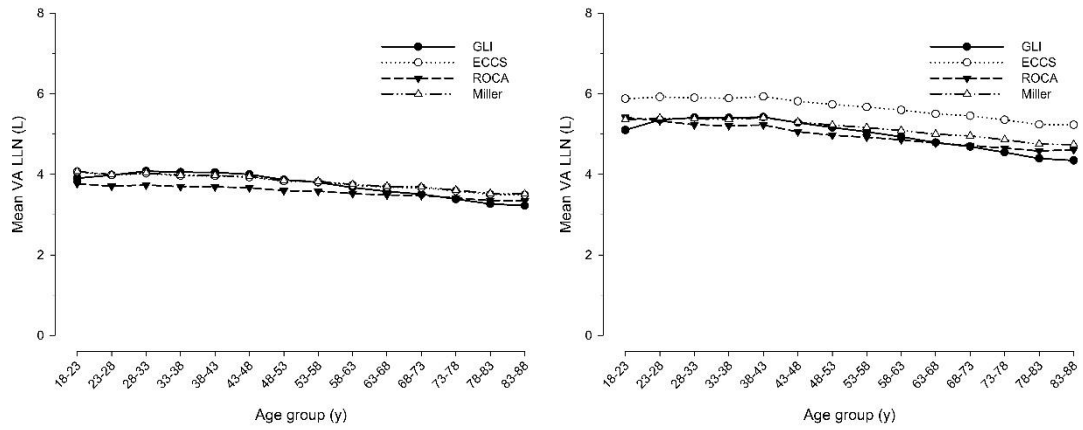


Figure S9: Mean VA lower limit of normal (LLN) for each of the adult reference equations as a function of age, separated into females (a) and males (b).

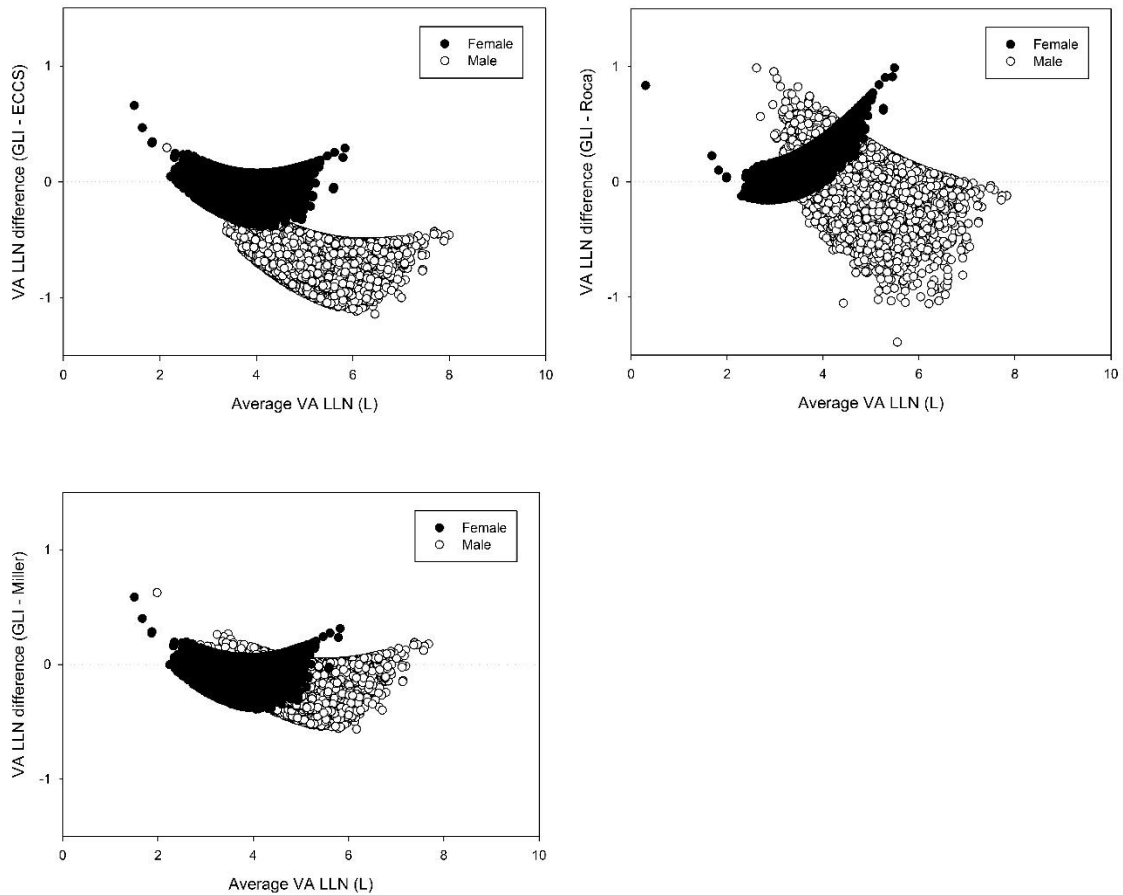


Figure S10: Bland-Altman plots comparing the lower limit of normal for VA for each of the older equations (a - ECCS, b – Roca, c – Miller) with that of GLI. No lower limit of normal for VA is available for the Crapo equations.

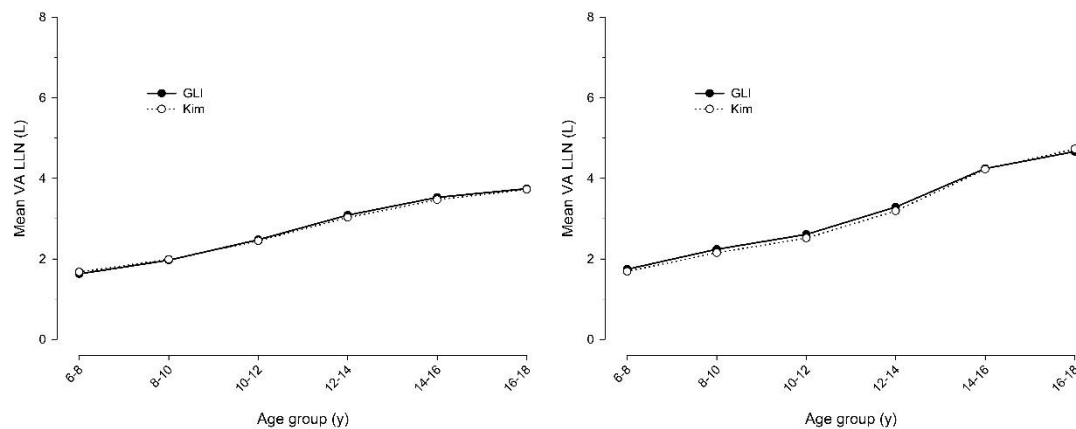


Figure S11: Mean VA lower limit of normal (LLN) for each of the paediatric reference equations as a function of age, separated into females (a) and males (b).

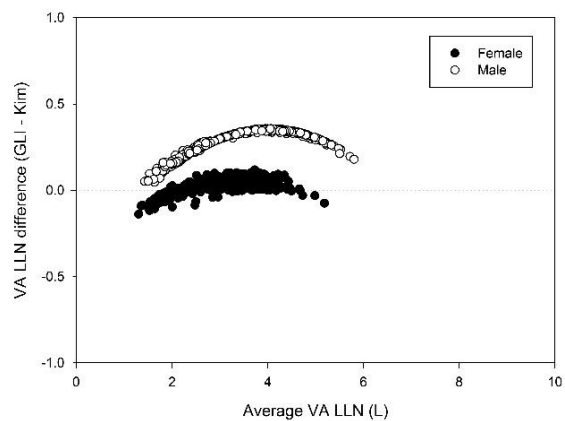
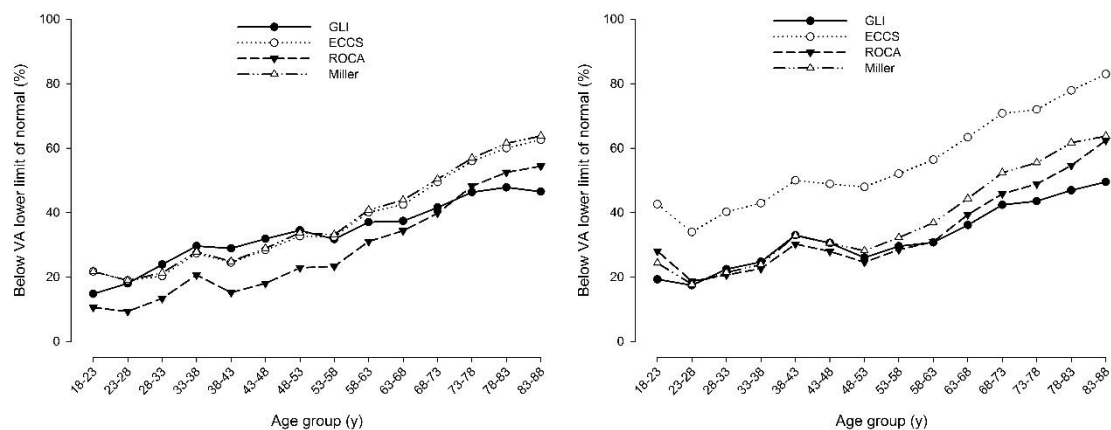


Figure S12: Bland-Altman plots comparing the lower limit of normal for VA for Kim equations with that of GLI. No lower limit of normal for VA is available for the Cotes equations.



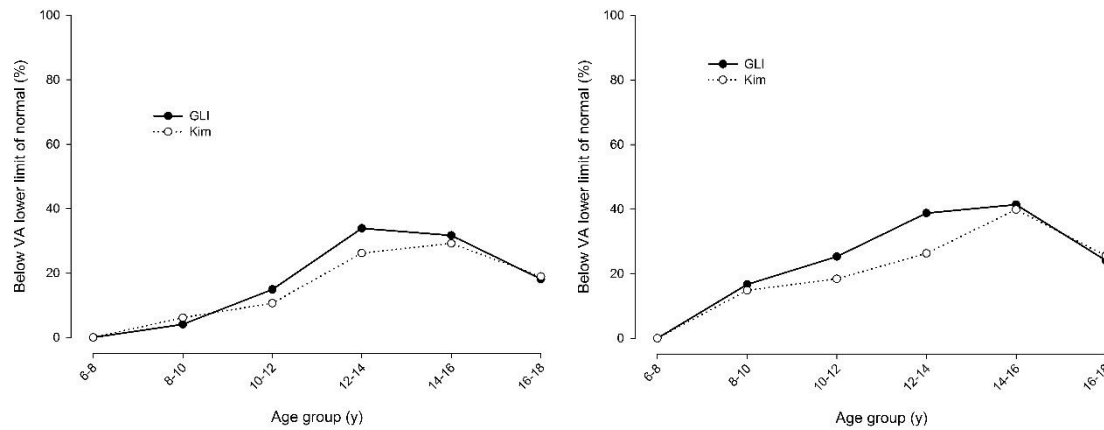


Figure S13: The proportion of adult females (a), adult males (b), female children (c) and male children (d) with a VA below the lower limit of normal (LLN) using each reference equations, as a function of age.

Table S6: Levels of agreement for a reduced VA (below LLN) comparing GLI equations to each of the older reference equations.

Equation vs GLI2017		Reduced VA % raw agreement (kappa)		
		all	females	males
Adult	Miller	93.0 (0.86)	93.8 (0.87)	92.4 (0.84)
	Roca	93.2 (0.85)	93.5 (0.86)	92.8 (0.85)
	ECCS	83.9 (0.68)	94.2 (0.88)	74.3 (0.51)
Children	Kim	90.6 (0.72)	98.1 (0.91)	85.0 (0.58)