

Supplementary Table S1. Calculated acid-base formulas from three acid-base analysis methods [8,18,19]

Parameter	Formula
Anion gap (AG)	$([Na^+] + [K^+]) - ([HCO_3^-] + [Cl^-])$
SID apparent (SID _a)	$([Na^+] + [K^+] + [Ca^{2+}] + [Mg^{2+}]) - [Cl^-] - \text{Lactate}$
Albumin contribution	Measured albumin $\times ((0.123 \times \text{pH}) - 0.631) \times 10$
Phosphorus contribution	Measured phosphorus $\times 0.323 \times ((0.309 \times \text{pH}) - 0.469)$
A _{TOT}	Albumin contribution + phosphorus contribution
SID effective (SID _e)	$[HCO_3^-] + \text{albumin contribution} + \text{phosphorus contribution}$
Strong ion gap	SID apparent – SID effective
Free water effect	$0.22 ([Na^+] - \text{mid-normal } [Na^+])$
Corrected chloride	Measured $[Cl^-] \times (\text{mid-normal } [Na^+] / \text{measured } [Na^+])$
Chloride effect	Mid-normal $[Cl^-] - \text{corrected } [Cl^-]$
Phosphate effect	$0.58 (\text{Mid-normal } [\text{phosphorus}] - \text{measured } [\text{phosphorus}])$
Albumin effect	$3.7 (\text{Mid-normal albumin} - \text{measured } [\text{albumin}])$
Lactate effect	$-1 \times [\text{lactate}]$
Sum of effects	Free water effect + chloride effect + phosphate effect + albumin effect + lactate effect
Unmeasured anion effect	Base excess – sum of effects

SID, strong ion difference; A_{TOT}, total quantity of weak acid.