

/ABG

This page focuses on explaining the different results that are provided on an ABG printout slip. They are explained further on the 'causes of disruption' page. Please note, the normal values provided may differ with each analyser.

Components of the ABG

Analysis information

Measurement report

dd/mm/yyyy hh:mm

Serial number:

Unique serial number of the analyser

Instrument ID:

Assigned name of analyser i.e. A & E

Operator ID:

Unique ID of operator ID

Hospital Location:

Name of the hospital

Patient information

Patient ID:

Usually patient NHS number

Patient Name:

Date of Birth:

Remark:

i.e. on 2L/min nasal cannula

F_iO₂:

Fraction of inspired oxygen i.e. 0.21 for room air, 0.28 with a controlled venturi mask

Temperature:

Recorded patient temperature (may affect analysis)

Blood type:

Arterial or venous sample provided?

Blood gas values

pH [7.350 - 7.450]

pH is defined as the negative log of the hydrogen ion activity: This means that when the concentration of H⁺ goes up, and the solution becomes more acidic, the pH goes down, and vice versa

pCO₂ [4.27 - 6.40]

Partial pressure (number of molecules of a particular gas in a mixture of gases) of carbon dioxide in arterial blood

pO₂ [11.07 - 14.40]

Partial pressure of oxygen in arterial blood

Acid base status

cHCO₃⁻ [22.0 - 26.0]

Concentration of bicarbonate (HCO₃⁻)

BE [-2.0 - +2.0]

The base excess is another surrogate marker of metabolic disturbance, it may be used instead of the bicarbonate value, but adds nothing extra

Electrolyte status

Na⁺	[136.0 - 145.0]
K⁺	[3.50 - 5.10]
Ca²⁺	[1.150 - 1.330]
Cl⁻	[98.0 - 107.0]

A venous or arterial blood gas is a good way to quickly check electrolyte status

Oxygen status and co-oximetry

Hct (%)	[36.0 - 53.0]
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Haematocrit (volume percentage of red blood cells in blood)

tHb (g/L)	[115.0 - 178.0]
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Total haemoglobin; includes the values below. Haemoglobin acts as a guide but is notoriously inaccurate in an ABG

COHb (g/L)	[0.0 - 3.0]
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Concentration of carboxyhemoglobin. Elevated in carbon monoxide poisoning

O₂Hb (g/L)	[97.0 - 98.0]
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Concentration of oxyhemoglobin

MetHb (g/L)	[0.0-1.5]
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MetHb is an oxidized form of haemoglobin, which may be abnormally raised in methaemoglobinaemia

SO₂	[94.0-98.0]
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Commonly referred to as O₂ saturations, ratio of oxyhaemoglobin, to total Hb

Metabolite values

Glu	[3.5 - 5.3]
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Glucose level; important in DKA and sepsis

Lac	[0.6 - 2.5]
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Lactate level; important in sepsis, and also hypoperfusion. Often in sepsis, an ABG is often the fastest and easiest way of determining lactate

Measurement report

16.02.17 09:10

Serial number : 4500

Instrument ID : QF4500

Operator ID : DR.ABG

CCU Local District Hospital

Pat. ID	047328	
Patient Name	Mr. White	
Date of birth	03.05.72	
Remark	Room Air	
FIO ₂	0.21	
Temperature	37.0 °C	

pH	7.390	[7.350 – 7.450]
pCO ₂	4.99 kPa	[4.67 – 6.00]
pO ₂	12.25 kPa	[10.67 – 13.33]

cHCO ₃ ⁻	24.0 mmol/L	[22 – 26]
BE	0.7 mmol/L	[-2.0 – +2.0]

Na ⁺	140.0 mmol/L	[135.0 – 148.0]
K ⁺	3.90 mmol/L	[3.50 – 4.50]
Cl ⁻	100.0 mmol/L	[98.0 – 107.0]
Ca ²⁺	1.200 mmol/L	[1.120 – 1.320]

Hct	40.0 %	[35.0 – 50.0]
tHb	130.0 g/L	[120.0 – 150.0]
COHb	1.0 %	[0.5 – 2.5]
O ₂ Hb	97.0 %	[95.0 – 99.0]
MetHb	1.0 %	[0.4 – 1.5]
SO ₂	99.0 %	[75.0 – 99.0]

Glu	4.0 mmol/L	[3.3 – 6.1]
Lac	1.0 mmol/L	[0.4 – 2.2]

Figure 1: Exemplar ABG printout