



# Poison HOTLINE

1-800-222-1222

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### Did you know .....

The IPCC is staffed 24/7 by Specialists in Poison Information (SPI), with back up by board-certified physician toxicologists. All SPIs are either doctors of pharmacy or are registered nurses, most of whom have at least 10 years of ER or ICU experience.

A specialist may become certified (CSPI) once he or she has managed a minimum of 2,000 human exposures and has completed 2,000 hours of handling poisoning phone calls. A national recertification exam is required every 7 years to maintain certification as a SPI.

During training, a SPI learns the symptoms, assessment, and management of many different kinds of poisons.

## Metabolic Acidosis

Metabolic acidosis is a pathologic condition resulting from a decrease of bicarbonate or an increase of hydrogen ions. Simply put, it is a condition in which there is too much acid in the body. Metabolic acidosis can cause an acidemia, which is defined as an arterial pH is less than 7.35.

A metabolic acidosis may be present if the pH is less than 7.40 and the serum bicarbonate concentration is less than 24 mEq/L. After the diagnosis of metabolic acidosis has been determined an anion gap (AG) should be calculated, which may be normal or high. The anion gap is calculated by using the sodium (Na), chloride (Cl) and bicarbonate (HCO<sub>3</sub>), and the formula is:

$$\text{Anion Gap} = \text{Na} - (\text{Cl} + \text{HCO}_3) \quad \text{A normal anion gap is } \leq 12$$

If the acidosis is primary caused by a direct loss of bicarbonate or gain of chloride, the AG will be normal and the condition is known as a non-anion gap acidosis. If the primary problem is the accumulation of organic anions (such as ketones or lactic acid), the AG will be elevated and the condition is known as high anion gap acidosis.

Some symptoms of metabolic acidosis can be rapid breathing, confusion, weakness, and lethargy. Severe metabolic acidosis can lead to shock and/or death. If suspected, a basic metabolic panel, arterial blood gases, and a calculated anion gap should be obtained. Treatment is aimed at correcting the underlying condition. In many cases, sodium bicarbonate is needed.

Causes of Metabolic Acidosis	
Non-anion Gap	High Anion Gap
F – Fistula (pancreatic)	M – Methanol
U – Ureteroenteric conduits	U – Uremia
S – Saline excess	D – Diabetic ketoacidosis
E – Endocrine (hyperparathyroid)	P – Propylene glycol
D – Diarrhea	I – Isoniazid (from seizures)
C – Carbonic anhydrase inhibitors	Iron (from hypotension)
A – Arginine, lysine, chloride	L – Lactic acidosis
R – Renal tubular acidosis	E – Ethylene glycol
S – Spironolactone	S – Salicylates

Contact the IPCC if you suspect your patient has a drug or toxin induced acidosis at **1-800-222-1222**.

*Janet Gray, RN, BSN, CSPI  
Certified Specialist in Poison Information*



*Hotline Editor: Kimberly Zellmer, PharmD; Deputy Editor: Edward Bottei, MD*

Post and share this edition of **Poison Hotline** with your colleagues. Send comments or questions to Poison Hotline, 712-234-8775 (fax) or [Tammy.Noble@UnityPoint.org](mailto:Tammy.Noble@UnityPoint.org). To subscribe or unsubscribe from this distribution list, contact the IPCC education office at 712-279-3717. Read past issues of **Poison Hotline** at [www.iowapoison.org](http://www.iowapoison.org).