



Date: January 25, 2021
To: Lethbridge and Area Physicians, Nursing Staff and Laboratory Staff
From: Clinical Biochemistry, South Sector, Alberta Precision Laboratories (APL)
Re: Flagging Unaccounted Osmolal Gap Results > 10 mOsm/kg

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Key Message:

- Effective **January 28, 2021**, unaccounted osmolal gap values will now be flagged as abnormal in Meditech when > 10 mmol/kg.
- Osmolal gap should not be used to screen patients for toxic alcohol poisoning due to low positive and negative predictive values of this assay. If toxic alcohol ingestion is a clinical suspicion, please consult with PADIS or Clinical Biochemist (403-770-3219) prior to further testing.

Why this is Important:

- An elevated osmolal gap (the difference between calculated and measured osmolality) is caused by the presence of unmeasured osmotically active substances in the blood.
- Osmolal gap is calculated as follows:

Calculated Osmolality = $2 \times [\text{Na (mmol/L)}] + \text{Glucose (mmol/L)} + \text{Urea (mmol/L)}$

Osmolal Gap = Measured – Calculated Osmolality

Osmolal Gap, Unaccounted = Measured – [Calculated Osmolality + $1.25 \times \text{Ethanol (mmol/L)}$]

- Causes of an elevated unaccounted osmolal gap include diabetic, alcoholic and starvation ketoacidosis, sepsis, toxic alcohol poisoning and a variety of drugs (e.g. isoniazid, mannitol, propylene glycol, contrast dyes, glycerol).
- Historically these values were not flagged to discourage the overuse of confirmation testing by Gas Chromatography, which requires referral to Calgary.

Action Required:

- Note that the unaccounted osmolal gap values will be flagged as “High” above 10 mmol/kg.
- No critical value will be added.

Inquiries and feedback may be directed to:

- Dr. Dennis Orton, Clinical Biochemist, South Sector - Chinook Regional Hospital, (403) 770-3219, Dennis.Orton@aplabs.ca

This bulletin has been reviewed and approved by:

- Dr. Krishna Narra, Regional Laboratory Medicine Site Chief, Chinook Regional Hospital
- Dr. Hossein Sadrzadeh, Section Chief, Clinical Biochemistry, South Sector
- Dr. Leland Baskin, Associate Medical Director, South Sector