Sodium Abnormalities
How Should I Investigate HYPERNATRAEMIA in adults?

Coventry and Warwickshire Pathology Services

Symptoms

Headache, confusion, nausea & vomiting, lethargy, irritability, seizures, coma

May be asymptomatic depending on rate of change & severity

High Sodium (Na) result received

- **Establish history of thirst, fluid intake/loss and current treatments**
- **Check for clinical features of dehydration and/or hypovolaemia**
- **Repeat sodium to confirm and establish if acute and changing or chronic and stable. Changes of up to 4 mmol/l can reflect non-significant variation.**

Sodium Ref range 133-146 mmol/L

Clinical significance ↑Na depends on severity, speed of onset and underlying cause.

Usually due to deficiency of water, not an excess of sodium

Serum Sodium	146-149 mmol/L	150-155 mmol/L	≥155 mmol/L
	Persistent and stable serum sodium without clinical features of hypovolaemia may reflect a statistical population outlier and may not require investigation unless there has been a large recent increase	• Check serum UE, glucose, calcium (↑Na with a high/rising urea and only mild increase in creatinine is a useful adjunct to making a diagnosis of dehydration) • Request random urine and serum osmolality. Urine should be maximally concentrated when lack of water is the cause i.e. osmolality >750 mosm/Kg. In *diabetes insipidus (DI)* there is high serum osmolality (>300 mosm/kg) and inappropriately dilute urine (less than serum). In HHS*, urine & serum osmolality are similar to each other , i.e. around 350-450. • Consider specialist advice if clinical cause not apparent and oral rehydration, if indicated, is not realistically practical	Seek specialist advice or admission

Note Thresholds for action & referral should be based principally on clinical state and rate of change of serum sodium values

Risk Factors ↑Na:

Age >65y

Dementia & other mental/physical disability

Residential care

Overview of Causes High Sodium in Primary Care

Low fluid intake

Failure to drink (impaired thirst/swallowing)

Poor access to fluids

Inability to express thirst

Excess water loss

Diabetes mellitus (Type 2 DM)
Hyperosmolar hyperglycaemic state* (HHS)

Diabetes insipidus (polyuria/polydipsia)
Nephrogenic (renal resistance to ADH)
e.g. Lithium treatment

Central (Lack ADH secretion from pituitary)
e.g. Head injury, pituitary disease

Salt excess

Salt intoxication (suggested by non-elevated urea)