Sodium Abnormalities
How should I investigate HYPONATRAEMIA 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

Low Sodium (Na) result received

- **Establish history of fluid intake and current treatments**
- **Assess fluid status to identify if hypovolaemic or hypervolaemic**
- **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 133-146mmol/L

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

Usually due to excess water, not a deficiency of sodium

Serum Sodium	130-133 mmol/L	115-130 mmol/L	115-124 mmol/L	<115 mmol/L
	Persistent and stable serum sodium in clinically well patient may reflect a statistical population outlier and may not require investigation unless there has been a large recent fall	• Check serum UE, triglycerides, protein, glucose • If cause not clinically apparent, check random urine Na and osmolality if SIADH suspected. Urine Na >30 mmol/l and urine osmolality>100 mOsm/Kg suggest SIADH • Consider Addison's disease and hypothyroidism • Consider reset osmostat syndrome in patients with chronic illness and stable hyponatraemia • Consider artefactual causes: hyperproteinaemia (e.g. myeloma) and severe hyperlipidaemia	• Seek specialist advice unless long-term stable and cause established • Consider immediate admission if Na falling rapidly or neurological signs/symptoms present	Immediate admission usually indicated

Note The patient's clinical state & rate of change of sodium are more important than absolute serum sodium values

Drugs commonly causing ↓Na:

Thiazide diuretics
Amiloride
Carbamazapine
SSRIs
PPIs
ACE inhibitors

Overview of Causes Low Sodium in Primary Care (according to ECF volume status)

HYPOVOLAEMIA
(with net Na depletion)

Extra-renal loss (urine Na <30 mmol/L):
Diarrhoea, vomiting, excessive sweating

Renal loss (urine Na >30 mmol/L):
Diuretics, Addison's disease, kidney disease

EUVOLAEMIA
(due to water gain)

SIADH
Malignancy; typically lung, upper GI
Chronic lung disease, infection, abscess
Cerebral injury, stroke, infection
Hypothyroidism
Excess drinking (urine osmo <100 mOsm/Kg)
Hyperglycaemia

HYPERVOLAEMIA
(oedema states)

CCF
Cirrhosis with ascites
Nephrotic syndrome