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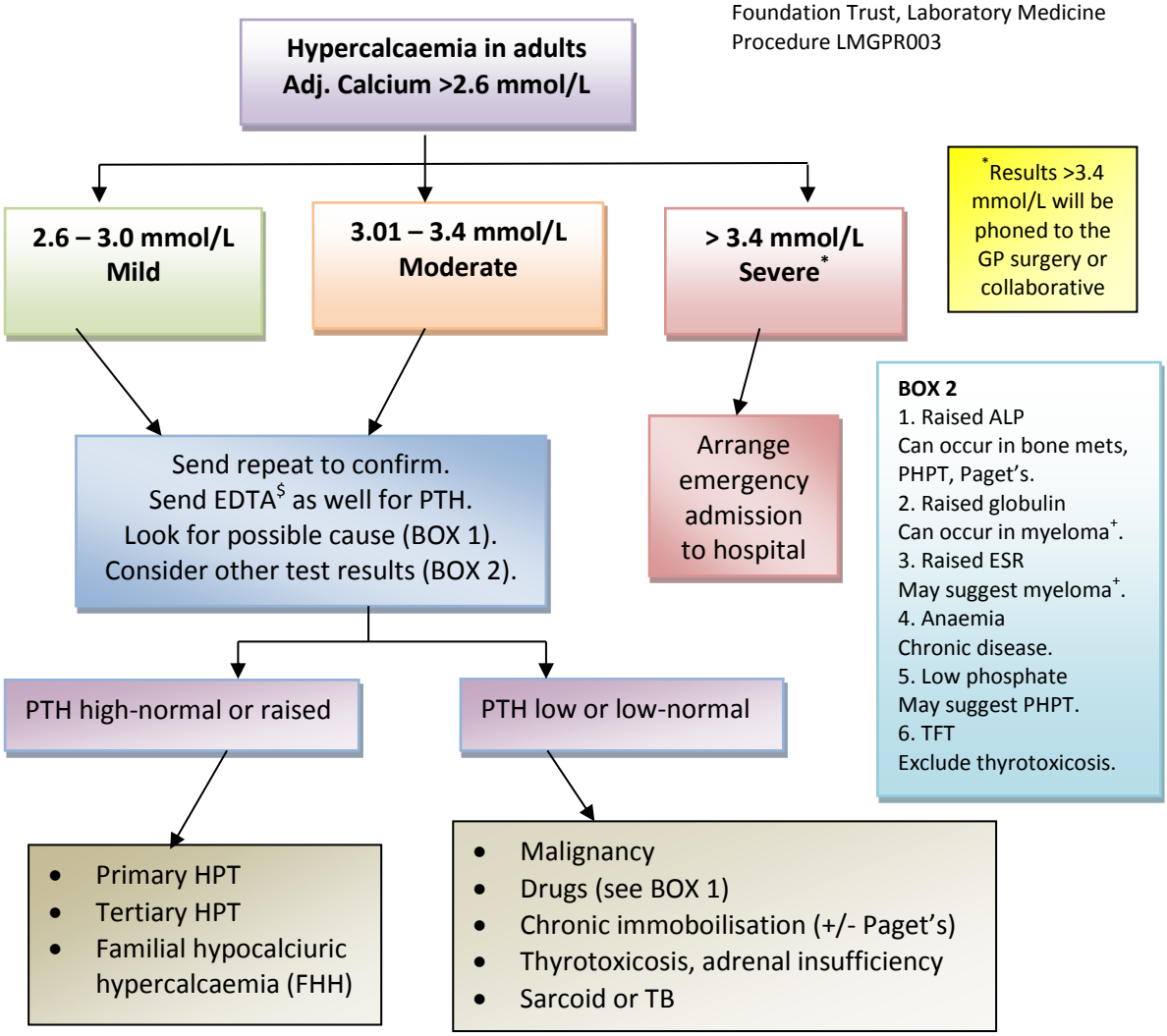
Sheffield Teaching Hospitals NHS Foundation Trust, Laboratory Medicine Procedure LMGPR003

BOX 1
Possible causes:
1. PHPT: May have history of renal stones or #.
2. Malignancy: Bone mets (e.g. breast, prostate), lung ca and myeloma.
3. ESRF or transplant: Suggesting tertiary HPT.
4. Chronic immobilisation (particularly in Paget's).
5. Dehydration (may be a cause or a symptom).
6. Thyrotoxicosis (rare cause)
7. Addison's (v. rare cause)
8. Sarcoidosis or TB (both rare).

Drugs: These include
1. Calcium supplements.
2. Thiazide diuretics.
3. Vitamin D analogues e.g. alfacalcidol, calcitriol.
4. Vitamin A toxicity.
5. Lithium$^{\Delta}$.
6. Calcium-containing antacids (or calcium supplements co-prescribed with antacids).
7. Vitamin D replacement with ergo- or cole-calciferol (**rare cause**)



MANAGEMENT OF SEVERE OR SYMPTOMATIC HYPERCALCAEMIA (>3.40 mmol/L):
Admit immediately to hospital.

MANAGEMENT OF ASYMPTOMATIC, MILD OR MODERATE HYPERCALCAEMIA (≤3.40 mmol/L):

Suggested management by suspected cause:

- **Primary hyperparathyroidism or FHH**: Refer to an endocrinologist.
- **Malignancy**: Refer urgently to the appropriate specialist.
- **Known CKD STAGE 4/5**: Refer to their renal specialist.
- **New renal failure** (?secondary to hypercalcaemia)**:** Consider admitting to hospital or referring them urgently to a renal specialist (depending on the symptoms and likely speed of onset).
- **Drugs**: Stop them if appropriate and recheck the serum calcium
  - **If the person is taking ergo- or colecalciferol,** check their vitamin D level. An elevated result suggests toxicity (a **rare** cause of hypercalcaemia). In such cases, it may take many weeks for the serum calcium to return to normal after discontinuing. If the vitamin D level is normal, look for another cause.
  - **If the person is taking lithium,** contact their mental health specialist to discuss whether to stop the lithium, monitor the serum calcium, or refer to an endocrinologist.
  - **If the adjusted serum calcium remains high after discontinuation of the drug,** look for another underlying cause or refer to an endocrinologist or other appropriate specialist.
- **Non-parathyroid endocrine disease:** Refer to an endocrinologist.
- **Immobilisation in Paget's disease:** Refer to a specialist in metabolic bone disease.
- **Sarcoidosis:** Refer to a respiratory specialist (or other specialist depending on disease manifestation).
- **Tuberculosis:** Refer to infectious diseases.
- **If a cause is not clear:** Refer the person to an endocrinologist.

The duty biochemist can be contacted via switchboard (243 4343

$EDTA = Purple top tube
HPT = Hyperparathyroidism
PHPT = Primary hyperparathyroidism

$^{\Delta}$Lithium can induce PHPT or cause reduced renal calcium excretion
+If myeloma is suspected, arrange for serum and urine protein electrophoresis (Immunology, NGH)

http://www.cks.nhs.uk/hypercalcaemia. Accessed 08/02/13