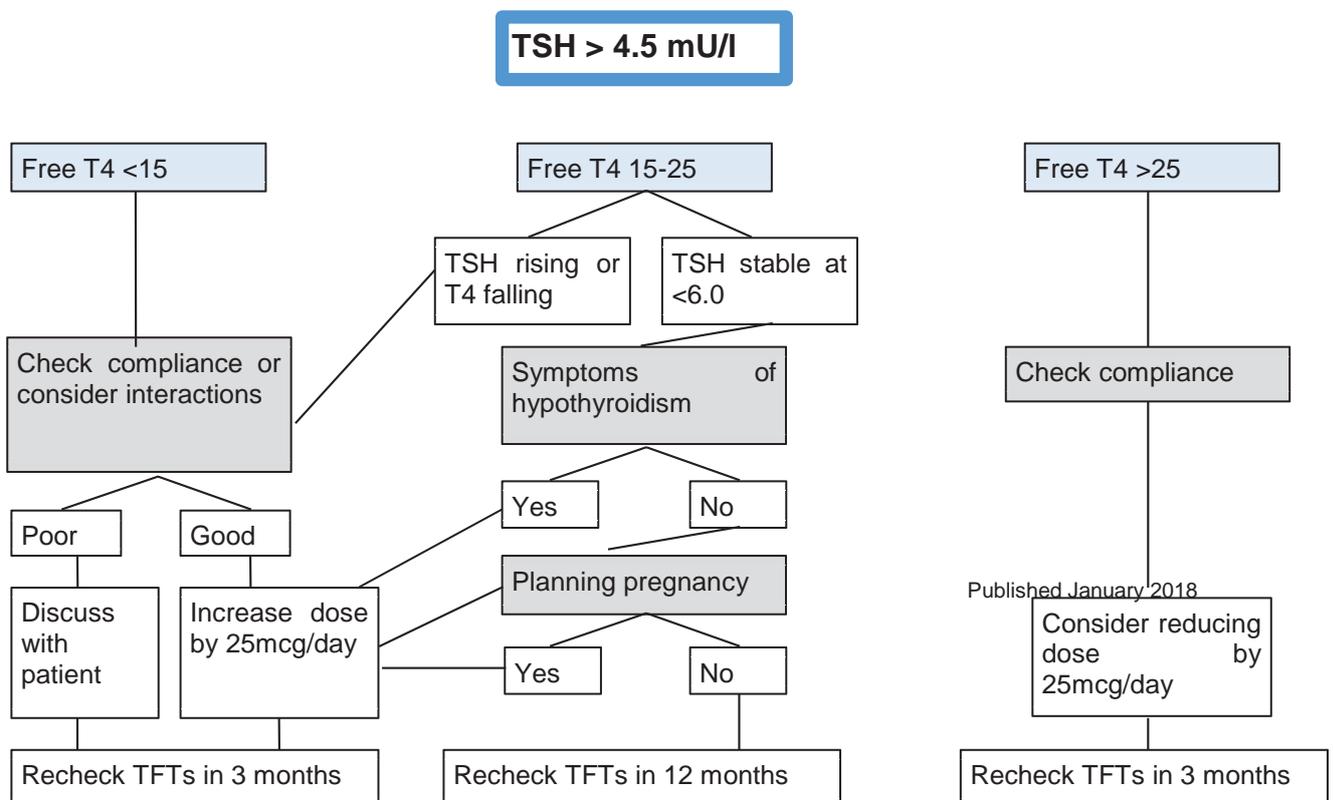
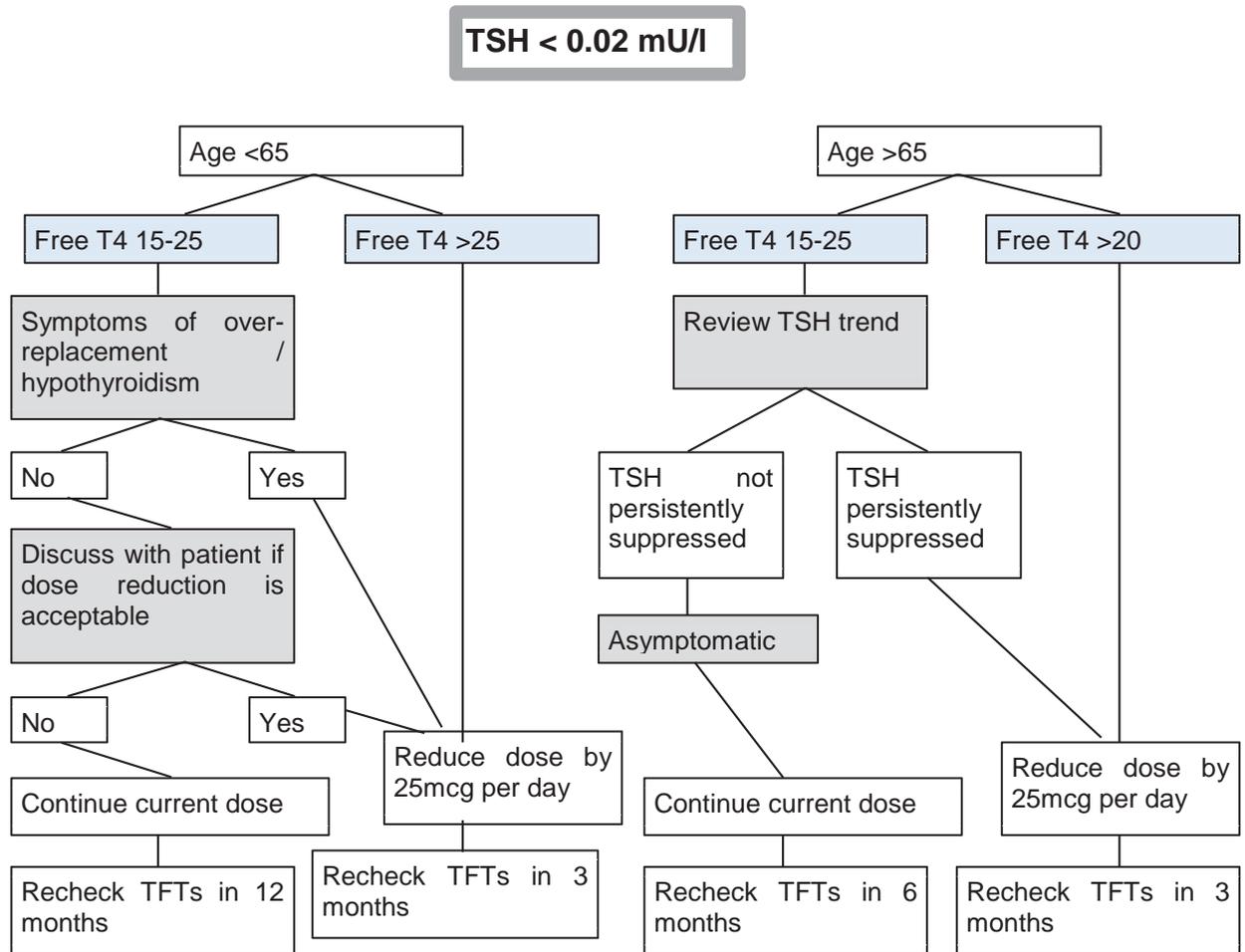


Appendix 1. Misleading thyroid function tests⁶

- **Pregnancy** — trimester-related reference ranges should be used.
- **Following treatment for hyperthyroidism** — recovery of previously suppressed TSH can be delayed.
- **Following initiation of levothyroxine therapy.**
- **Poor compliance with LT4 treatment** — additional doses in the days before monitoring can produce raised TSH and T4.
- **Hypopituitarism** — TSH is within the normal reference range in about 50% of people with secondary hypothyroidism, occasionally it may be raised. T4 is usually low.
- **Following thyroiditis** thyroid status can be unstable.
- **Non-thyroidal illness (or sick euthyroid syndrome)** – a wide range of chronic or acute non-thyroidal conditions, starvation, and trauma can lead to abnormalities in TFTs that are not due to true dysfunction of the hypothalamic-pituitary-thyroid axis.
 - TSH can be normal or low then become high during recovery from acute illness. T4 can be normal, low, or high. T3 is usually low due to reduced conversion of T4 to T3.
- **Drug treatment** — drugs may interfere with TSH secretion; production, secretion and transport of thyroid hormones; or absorption of thyroxine from the gut, for example:
 - dopamine and glucocorticoids can inhibit TSH secretion
 - propylthiouracil, amiodarone, and glucocorticoids can disrupt conversion of T4 to T3.
- **Several foods** impair absorption of levothyroxine including milk, coffee, soya products, and papaya.
- **End-organ resistance** — some people with end-organ resistance to thyroid hormones have either normal TSH with high thyroid hormone levels or raised TSH with normal thyroid hormone levels. Diagnosis of end-organ resistance is confirmed by specialist gene sequencing.
- **Adrenal insufficiency** may be associated with elevated TSH levels that reverse with glucocorticoid replacement.
- **Obesity** — serum TSH levels greater than 3.5 mU/L are common in obesity.
- **Advancing age** — there is a widening of the normal range for TSH with increasing age. Mild TSH elevation (4.0–7.0 mU/L) may be a normal physiological adaption to ageing.

Appendix 2. Adjusting levothyroxine doses in hypothyroid patients

This algorithm is based on the NHS Grampian protocol, devised by Dr Sam Philip, Consultant in Diabetes and Endocrinology, Aberdeen Royal Infirmary. This is not specifically evidence-based and should be considered as expert advice. PBSGL members may wish to consult their local guidelines.



Appendix 3. Short Synacthen test for adrenal insufficiency in adult patients

A functioning adrenal gland increases production of cortisol in response to ACTH administration.

Patient preparation for test:

- Exogenous steroids must not be taken for at least 24 hours prior to the test
- Test should be started between 08:00 and 10:00
- Material:- Synacthen (tetracosactrin, 1-24 ACTH) ®CIBA 250 ug (0.25mg) in a 1 mL ampoule

Protocol and sampling

- Basal Blood Specimen Withdraw blood for serum cortisol analysis
- Synacthen injection: Inject 0.25mg Synacthen i/v over a few seconds
- After 30 minutes - Withdraw blood for serum cortisol analysis
- Label each sample carefully, indicating whether they are pre- or post-synacthen
- Send both samples together to the Biochemistry laboratory

Interpretation

- Peak cortisol values ≥ 450 nmol/L indicate a likely adequate response. However, peak values higher than this may be achieved in cases of adrenal insufficiency secondary to pituitary disease.

Example of emergency medical card for patients with Addison's disease.⁷¹

The image shows two emergency medical cards for patients with Addison's disease. Both cards are framed in red and feature a red Star of Life symbol with a caduceus in the center.

Left Card: Patient Information Form

- IMPORTANT MEDICAL INFORMATION**
- QR code
- THIS PATIENT NEEDS DAILY STEROID REPLACEMENT THERAPY**
- Fields for Patient Name, Date of Birth, Hospital, and Hospital Phone No.

Right Card: Emergency Instructions

- IMPORTANT MEDICAL INFORMATION**
- THIS PATIENT NEEDS DAILY STEROID REPLACEMENT THERAPY**
- In case of serious illness, trauma, vomiting or diarrhoea, **Hydrocortisone sodium succinate 100mg iv/im and iv saline infusion must be administered WITHOUT DELAY to avoid life-threatening adrenal crisis**
- For further information see www.endocrinology.org/adrenal-crisis

Appendix 4: Algorithm for the investigation of suspected hypogonadism in primary care⁶¹

Reviewed July 2017. Next review date July 2019

CFT = Calculate free testosterone

