

Clinical Guidelines

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Thyroid Regional Assessment and Management Plan

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Name of originator/author:	Dr J S Skinner, Consultant Community Cardiologist
Target audience:	All clinicians in the Newcastle, North Tyneside and Northumberland areas
Consultation Process:	Guideline group was multidisciplinary from all representative organisations

Mandatory/Statutory Standards or Requirements	Standards for Better Health NHS Litigation Authority Standards
Training Requirements	No specific training requirements
Distribution	Primary care, secondary care
Implementation	Discussions with the educational Leads to incorporate into time out sessions for primary care
Monitoring Compliance	Through audit of referrals received in secondary care



*The NHS in Newcastle, North Tyneside
and Northumberland*

TRAMP1

Thyroid regional assessment and management plan

- The purpose of TRAMP1 is to provide guidelines as to testing, interpretation and treatment of common thyroid disorders, for use across primary and secondary care
- TRAMP1 does not consider childhood thyroid disease

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Introduction

Abnormalities of thyroid function are commonly encountered in all areas of medical practice, with more than 2% of people suffering an overt thyroid disorder over a lifetime and an additional 5% of the populations with biochemical abnormalities of subclinical thyroid disorders. Overall, there are about 18 million prescriptions for thyroxine dispensed annually in England, and approximately 120,000 requests for serum thyroid function testing are received by the Newcastle upon Tyne Foundation NHS Trust laboratories annually. Optimal delivery of healthcare for thyroid patients, and those suspected of having thyroid disease, is therefore important, both in terms of the numbers of patients affected and in the substantial resources deployed. The aim of the guideline is to form a rational basis for good practice in thyroid function testing and the management of common thyroid problems in the Newcastle, Northumbria & North of Tyne region. The guideline will provide a framework for the local implementation of the detailed National (British Thyroid Association/ Association of Clinical Biochemists) guidelines on thyroid function testing, the Royal College of Physicians/ British Thyroid Association Guidelines on use of radioiodine for benign thyroid disease, and the British Thyroid Association/ British Association of Endocrine Surgeons Guidelines on the management of thyroid cancer.

The scope of the guideline is to encompass all adults over 18 years with thyroid disease or suspected thyroid disease (including pregnancy), but children and young people are not included. The aim is to provide guidance for primary care, and for secondary care provided by non-endocrinologist hospital services, including mental health services.

Format of the guideline

The guideline has 2 parts; a summary for use in primary care (at the end of this document) which can be folded to be double sided A5, easily laminated and kept readily available, and a set of supporting resource notes with more detailed recommendations. Clinicians seeing patients with thyroid disorders should be familiar with the main document, but may wish to use the summary as an everyday reminder.

Part 1. Screening for thyroid disorders

Background

- The laboratory testing strategy is based on an initial serum TSH measurement. If the TSH is abnormal, the lab will cascade additional measurements of free thyroid hormones and thyroid peroxidase antibodies as appropriate.
- A normal serum TSH excludes primary thyroid disease, but could be consistent with the much rarer problem of central or secondary hypothyroidism due to hypothalamic/pituitary disease. These patients invariably have other hormonal dysfunction (eg. secondary amenorrhoea, hypogonadism, hyperprolactinaemia, hyponatraemia).
- The information returned from the laboratory will be enhanced by recording basic clinical details (eg. 'suspected hypothyroidism' or 'on thyroxine') on the request card.
- The laboratory will phone the following results back to the requesting clinician, during the next working day:
 - TSH >20 mU/l
 - TSH >10 with low FT4
 - FT4 > 30, with TSH<0.05, or raised FT3

Who to test ?

- Unselected screening of the general population is not warranted
- Test individuals with features of hyperthyroidism and hypothyroidism
 - These symptoms are well-known, and it is more often the combination of manifestations rather than an individual feature that raises the clinical suspicion.
- Screen certain groups for hypothyroidism
 - Newly diagnosed hypercholesterolaemia, type 2 diabetes or IHD
 - Newly diagnosed major mood disturbance, severe mental illness
 - Following radioiodine or thyroidectomy for hyperthyroidism; early testing 4 to 8 weeks post-procedure; then 3 monthly for 1 year; annually thereafter.
- Screen certain groups for hyperthyroidism:
 - New onset atrial fibrillation
 - Worsening angina pectoris
- Some groups require annual surveillance for thyroid dysfunction
 - Patients with type 1 diabetes (at annual review)
 - Down's and Turner's syndrome
 - Post neck irradiation
 - Past history of post-partum thyroiditis; annual check for 5 years, but also prior to new pregnancy and 6 weeks post future deliveries
 - Following drug-induced or painful thyroiditis annually for 5 years

Summary table: Routine Screening for thyroid dysfunction			
<i>Condition</i>	<i>At diagnosis</i>	<i>Annually</i>	<i>Duration</i>
Type 1 diabetes	+	+	Lifelong
Down's & Turner's syndrome	+	+	Lifelong
Post radioiodine therapy	3 monthly x4	+	Lifelong
Previous neck irradiation	+	+	Lifelong
Postpartum thyroiditis	+	+	5 yrs
Painful or drug-induced thyroiditis	+	+	5 yrs
Hypercholesterolaemia	+	-	-
Stable Ischaemic heart disease	+	-	-
Type 2 diabetes	+	-	-
Severe mood disturbance/ psychosis	+	-	-

•Other situations

-Hospital inpatients: routine screening in the absence of specific indications is not indicated (exceptions dementia, AF etc.).

-Annual screening in those with established vascular disease, or in those with psychiatric disorders, is not recommended.

-Screening in simple obesity is not recommended, but is reasonable prior to starting a pharmacological intervention

Part 2. Hypothyroidism

Diagnosis

An elevation of serum TSH is the most sensitive indicator of primary hypothyroidism. Free T4 should be measured if TSH is elevated; a low FT4 confirms overt hypothyroidism. Free T3 is normal in most cases of hypothyroidism-it is not a useful investigation. If TFTs do not fit the clinical picture; repeat before considering treatment, which will often be lifelong.

- Serum TSH >10 mU/l confirms overt hypothyroidism and should be treated with levothyroxine replacement
- Serum TSH 4.7 to 10 mU/l, low free T4: also overt hypothyroidism- treat with thyroxine
- Serum TSH 4.7 to 10 mU/l, normal free T4: subclinical hypothyroidism- review symptoms
 - If symptoms suggestive of hypothyroidism are present, discuss with the patient and consider a therapeutic trial of close to full-dose thyroxine (eg.75 or 100 mcg daily) for 3 or 4 months. If there is a symptomatic response over this time, then continue treatment. If no symptomatic response then check the TSH has been normalised by thyroxine (i.e. subclinical hypothyroidism was corrected). Consider other causes for symptoms (psychological as well as physical illness).
 - If no symptoms, or lack of a symptomatic response to a trial of thyroxine: then check thyroid antibody status. If antibodies are negative then recheck TSH in 3 years; if antibodies are positive, then recheck annually (with risks of progression to overt hypothyroidism of ~2% and ~5% yearly, respectively). **See Appendix 1.**
- In overt hypothyroidism it is not generally necessary to ascertain thyroid antibody status. In subclinical hypothyroidism, thyroid peroxidase antibodies predict the rate of progression and hence follow-up interval (1 vs 3 yearly).

Treatment

- Hypothyroidism should be treated with levothyroxine.

In those without ischaemic heart disease, or aged less than 60 years, a full replacement dose of levothyroxine should be started.

- A thyroxine dose of 100 µg is a suitable starting dose for most women and 125 µg for most men. However, the daily dose is dependent upon body weight, with 1.5 µg of thyroxine per Kg (rounding dose upwards to nearest 25µg), being a rough and ready approximation. See dosing table (below):

Weight (Kg)	Daily thyroxine dose
50	75 µg
60	100 µg
75	125 µg
90	150 µg
110	175 µg

•TSH may take 3 to 6 months to 'normalise' in people who have had a prolonged period of hypothyroidism (initial TSH >50 mU/l), even with full levothyroxine replacement. This is owing to pituitary thyrotroph hyperplasia.

•In those with known ischaemic heart disease, or over 60 years old, a starting dose of 50 µg daily is generally appropriate, with repeat TSH after 8 weeks and further dose titration as indicated. As long as the TSH is falling, there may be no need to increase the daily thyroxine dose. If there is no, or minimal, reduction in TSH a cautious upward titration of thyroxine dose is indicated. In those with recent MI, uncontrolled or unstable angina pectoris, or uncontrolled AF, a lower starting dose (12.5 or 25 µg daily) should be used, with monthly increments until TSH is within reference range.

•Failure to normalise TSH following 6 months thyroxine treatment

- Check patient medication concordance & explain long half-life of thyroxine
- Check for medications interfering with thyroxine absorption:
 - * Iron salts
 - * Calcium salts
 - * Proton pump inhibitors/ antacids
 - * Cholestyramine
- Consider malabsorption, eg. celiac disease

•Patients who are pregnant, or who have unstable cardiac conditions may need specialist management. Also consider endocrine referral for patients with overt hypothyroidism whose symptoms don't respond to thyroxine, or who have persistently abnormal TSH.

Monitoring

For patients with primary thyroid disease taking levothyroxine, the TSH should be checked annually (QOF standard)

•For patients with primary hypothyroidism, the aim is to keep the serum TSH within the reference range. For those with persistent hypothyroid symptoms despite treatment, aim for the lower half of the TSH range (TSH 0.3 to 2.5 mU/l).

•For patients with central/secondary hypothyroidism (owing to pituitary/ hypothalamic disease), the TSH is unreliable (often undetectable) and monitoring of thyroid replacement is best judged clinically, and using serum FT3 & FT4 measurement.

•For most patients with treated thyroid cancer, the long-term aim of the levothyroxine treatment is suppression of the serum TSH to <0.1 mU/l.

Part 3. Hyperthyroidism

Diagnosis

- A serum TSH < 0.1 mU/l, with either a raised FT4 or FT3 indicates hyperthyroidism.

If tests indicate hyperthyroidism, thyroid peroxidase autoantibodies should be measured (confirming the diagnosis of Graves' disease in most). The laboratory in Newcastle will trigger the request automatically as assay provided by biochemistry. In Northumbria HC may need separate request to immunology. Thyrotoxicosis with raised FT3 but normal FT4 is termed T3 thyrotoxicosis: treatment is the same as for regular hyperthyroidism. **See Appendix 2**

- If the serum TSH is < 0.1 mU/l with normal FT4 and/or FT3, repeat the TFT in 4 to 6 weeks, or earlier if strong suspicion of hyperthyroidism, or complications thereof (eg. AF).

- A persistent low or suppressed serum TSH (> 3 months), with normal serum free thyroid hormones may be due to:

- Chronic non-thyroidal illness *(TSH low)*
- Drug effects, including: *(TSH low or suppressed)*
 - prednisolone/ dexamethasone in anti-inflammatory doses
 - levodopa, amiodarone, moderate opiate use (eg. tramadol)
 - radiographic CT contrast (up to 6 months)
 - [thyroxine treatment]
- Endogenous subclinical hyperthyroidism *(TSH suppressed)*

If clinical suspicion of endogenous subclinical hyperthyroidism, patients may be discussed with, or referred to, an endocrinologist for further assessment (eg. thyroid scan). Action will be determined by the clinical picture and complications (eg. AF, osteoporosis). Progression of subclinical hyperthyroidism to overt hyperthyroidism is infrequent ($\sim 5\%$ /year). If low TSH is thought to be due to chronic non-thyroidal illness, further monitoring is not warranted.

Management

- Patients with hyperthyroidism should be referred to specialist services.
- Repeat blood tests to confirm persistent thyrotoxicosis; if there is a marked reduction in level of FT4 on repeat tests, the diagnosis could be a transient thyroiditis.
- Once hyperthyroidism is confirmed, therapy includes beta blockers such as propranolol LA 80mg daily initially, increasing to bd if needed (eg. re-appearance of palpitations at night). If already treated with a beta blocker, existing treatment could continue, or switch to propranolol. In those with asthma, diltiazem (MR 180mg) is an alternative to beta blockers.

•If symptoms are severe, or unstable cardiovascular state (eg. AF), carbimazole can be initiated in primary care (either 20mg od, or 40mg daily in divided doses). This could be discussed with the on call endocrinologist first, if preferred. For Newcastle Hospitals NHS Trust, a consultant endocrinologist carries a pager (Tel.07659-523355). For Northumbria Trust, please contact the consultant's secretary via the hospital switchboard. Patients starting carbimazole need to be warned about the possibility of agranulocytosis. A patient information leaflet about antithyroid drugs should be given:
Appendix 3.

•Thyroid function tests should be repeated 4 to 6 weeks after starting carbimazole. The majority of patients will have been seen an endocrinologist by then, but if not repeat testing can be arranged in primary care (there may be reasons why patients choose to delay their appointment, for example).

•In patients having a trial of medical therapy for Graves' disease, once the patient is euthyroid (generally after 4 to 8 weeks), thyroxine can be added in, in a full replacement dose (see section 2); block and replace regimen. Alternatively, the dose of antithyroid drug can be titrated downwards.

•Routine monitoring of full blood count is not required during treatment with carbimazole or propylthiouracil.

•Patients with unstable cardiac symptoms and signs and hyperthyroidism should be discussed immediately with an endocrinologist and/or cardiologist.

•Most patients with hyperthyroidism are managed initially with anti-thyroid drugs and/or primary radioactive iodine (RAI). Thyroidectomy is a less likely initial therapy.

•Radioiodine is a very efficacious, safe and cost effective therapeutic option for hyperthyroidism. For patients with moderate to severe hyperthyroidism (FT4 > 40 pmol/l or FT3 >15 pmol/l at presentation; large goitre) primary radioiodine is a good option, as these individuals rarely enter prolonged remission following anti-thyroid drugs. If severe thyrotoxicosis is present, or thyrotoxicosis with cardiac compromise/ AF, or in the elderly, then radioiodine is the preferred treatment. It is helpful if patients can have a chance to digest the information sheet about RAI, prior to attending clinic (**Appendix 4**).

Part 4. Pregnancy

Pre-pregnancy, early pregnancy

- Interpretation of thyroid function tests needs modification during pregnancy, to encompass trimester-specific reference ranges and differing clinical priorities.
- High risk people (as Part 1, plus - personal history of thyroid disease and family history of thyroid disease) are recommended to have thyroid function checked prior to pregnancy or as soon as possible after pregnancy is confirmed.
- Routine screening for thyroid dysfunction is not currently recommended in early pregnancy.
- Pregnant patients with thyroid disorders should generally be managed in medical obstetric clinics or with close obstetrician-physician liaison.

Previous Hypothyroidism

- Hypothyroid patients planning pregnancy should have their serum TSH optimised to the lower half of the reference range (TSH 0.3 to 3.0 mU/l).
- Serum TSH should be measured at the same time as pregnancy is confirmed, and again after 4 weeks. Patients treated with thyroxine replacement predictably require an increase in the dose of thyroxine, generally by 25µg daily as soon as pregnancy is confirmed. Women vary though, and those with previous thyroidectomy or radioiodine treatment will have no residual thyroid capacity and will require an increase; whereas those with Hashimoto's thyroiditis may have some residual thyroid function.
- The consensus treatment target is a TSH < 3.0 mU/l (NB. Suppressed TSH may be normal in first trimester).
- If initial TSH > 3.0, increase thyroxine dose by 50µg rather than 25µg
- If initial TSH < 0.1, FT4 should be measured. If FT4 elevated, the thyroxine dose should be reduced to the pre-pregnancy dose.
- Under-replacement is likely to be more harmful to fetal and maternal outcomes than mild over-replacement. The pregnancy-specific reference ranges mean that a TSH > 3.0 should be the threshold to increase thyroxine dose. **Appendix 5**
- Post pregnancy, the levothyroxine dose should be returned to pre-pregnancy levels. In many circumstances, it may be practical to simply repeat the TSH at the 6 week post-partum check.

Previous Hyperthyroidism

- In mothers who have been treated for Graves' disease, there is a risk of fetal/ neonatal hyperthyroidism, even if the mother is now taking thyroxine replacement following ablative/surgical treatment (due to persistence of thyroid stimulating antibodies). TBII (TRAb) antibodies should be measured in the first trimester, and if present at significant titres, should be rechecked in the second trimester. If high titre TBII persist, additional fetal monitoring (scan, heart rate) is required. Very rarely, antithyroid drug treatment of the mother is required to control the fetal hyperthyroidism. If TBII negative, risk of fetal hyperthyroidism is very low. Pregnant women previously treated for hyperthyroidism are infrequent.

Part 5. Drugs and the thyroid

Amiodarone

About 20% of people taking amiodarone ultimately develop either hypothyroidism or hyperthyroidism. These conditions often adversely affect their cardiac outcome.

Baseline (pre-Amiodarone)

- All patients should have thyroid function checked including TSH, FT3 and FT4 along with thyroid antibodies (ATPO).
- Patients with goitre or evidence of hyperthyroidism should be referred for assessment before amiodarone initiated, if possible. In some cases pre-emptive radioiodine ablation may be considered.

Follow up

- In persons with normal thyroid (no goitre, normal baseline TFT) the TFT (including TSH, FT3 and FT4) should be checked every 6 months (as recommended by SmPC for Amiodarone).
- In persons with a known thyroid problem (goitre, abnormal baseline TFT) tests should be performed more frequently (First at 3 months followed by 4 monthly).
- During the initiation of Amiodarone, there are frequently transiently abnormal thyroid tests. A TFT is not recommended before 3 months after initiation, unless symptoms develop.
- Amiodarone has a long plasma half life of up to 100 days. Thyrotoxicosis has been found up to 9 months to 1 year after amiodarone has been stopped. So thyroid follow up should continue 6 monthly for 1 year after stopping the drug.
- Indications for earlier thyroid testing on amiodarone
Weight loss, unexplained worsening or recurrence of well-controlled arrhythmia, new onset tremor, SOB, tachycardia

Interpretation of TFT on amiodarone

- Primarily be guided by TSH level, except in first 3 months of therapy
- FT4 can often be elevated in a euthyroid individual. It is common to see a FT4 of up to 30 pmol/l with normal TSH, indicating euthyroid status.
- High TSH, but normal FT4 often indicates overt hypothyroidism, and warrants cautious treatment (start with 25µg thyroxine).
- Low FT3 is of no consequence, but high FT3 indicates overt thyrotoxicosis.

Lithium salts

- Around 50% of people on long-term lithium develop goitre and up to 30% develop hypothyroidism.
- Before initiating Lithium treatment, patients should have careful thyroid clinical examination and blood tests for FT4, FT3, TSH and ATPO
- Thyroid function tests to be monitored 6 monthly. Shared care guideline already available and to be referred to.

List of drugs potentially causing abnormal thyroid function tests

Drugs causing abnormal Thyroid function tests without dysfunction

Quetiapine, Phenytoin, Carbamazepine, Androgens, Oestrogens, Tamoxifen, Raloxifene, Nicotinic acid, Rifampicin, Corticosteroids, Methadone, Tramadol Salicylates, Frusemide, Propranolol, Heparin

Drugs causing Hyperthyroidism

Amiodarone, Iodine contrast agents, Interferon-Alpha, Interleukin-2, Lithium

Drugs causing Hypothyroidism

Lithium, Thionamides, Amiodarone, Potassium Iodine solutions, Iodine containing contrast agents, Aminoglutethamide
Interferon-Alpha, Interleukin-2
Sunitinib (Destructive thyroiditis)
Bexarotene (central hypothyroidism)

Drugs interfering with levothyroxine absorption

Calcium Carbonate, Ferrous salts, Sucralfate, PPIs, Cholestyramine, Colestipol, colsevelam

Part 6. Thyroid nodules and thyroid cancer

Thyroid nodules

•The discovery of a new discrete thyroid nodule should be considered as suspected cancer. The TSH should be checked and the patient referred under the 2 week rule, particularly if any of the following features of concern are present:

****** -rapid nodule growth- ****** -change in voice- ****** -palpable lymph nodes- ******

- If the patient is hyperthyroid (suppressed TSH) referral does not need to be within 2 weeks; the TSH, FT4 & FT3 should be repeated and referred according to Part 3.
- In the presence of airway obstruction or stridor, referral should be as an emergency.
- The primary investigation of a new thyroid nodule is fine needle aspiration cytology.
- Neck ultrasound is not recommended prior to referral, as it does not change initial management and leads to delays in assessment.
- In the presence of an established multinodular goitre, the same features of concern (rapid growth, voice change, nodes) should initiate referral (with measurement of TSH). Adolescents and older men are relatively more likely to have cancer.
- Aspiration cytology is used to triage individuals to different care pathways: those who simply need observation (benign cytology-Thy2), diagnostic hemithyroidectomy (suspicious cytology- Thy3 and Thy4) or total thyroidectomy (thyroid cancer- Thy 5 and Thy6). The extent of diagnostic surgery is often guided by ultrasound or other imaging.

Management of thyroid replacement after thyroid cancer.

- All patients with thyroid cancer are under annual follow up in secondary care.
- TSH stimulates thyroid cell growth and needs to be adequately suppressed by thyroxine therapy.
- Target TSH for most people following thyroid cancer is < 0.1 mU/l.
- To suppress TSH, a daily dose of 175µg or 200µg (occasionally 225µg) levothyroxine is often required. An elevated FT3 > 6.5 pmol/l should be avoided, if possible.
- In a few individuals with low-risk (stage I) differentiated thyroid carcinoma the TSH target will be 0.1 to 0.5 mU/l.
- Individuals with medullary thyroid cancer do not require TSH suppression.
- If TFTs are measured in addition to the annual review, the dose of thyroxine should not be reduced without being sure this is appropriate.
- If there is any doubt about thyroxine dose, specialist advice should be obtained. (First contact-Julie Burton; thyroid cancer clinical nurse specialist-NUTH DECT phone 48654)

TRAMP1

Executive Summary

The purpose of TRAMP1 is to provide guidelines as to testing, interpretation and treatment of common thyroid disorders in adults, for use across primary and secondary care

SCREENING

•The laboratory testing strategy is based on an initial serum TSH measurement. If the TSH is abnormal, the lab will cascade additional measurements of free thyroid hormones and thyroid peroxidase antibodies as appropriate.

HYPOTHYROIDISM

•An elevation of serum TSH is the most sensitive indicator of primary hypothyroidism.

•Serum TSH >10 mU/l confirms overt hypothyroidism and should be treated with levothyroxine replacement. Serum TSH 4.7 to 10 mU/l, low free T4: also overt hypothyroidism- treat with thyroxine.

•Serum TSH 4.7 to 10 mU/l, normal free T4: subclinical hypothyroidism- review symptoms. If symptoms are present, a trial of thyroxine may be appropriate. If symptoms are absent; interval screening of TFT is sufficient.

• In those without ischaemic heart disease, or aged less than 60 years, a full replacement dose of levothyroxine (1.5 mcg/kg) should be started.

• For patients with primary thyroid disease taking levothyroxine, the TSH should be checked annually (QOF standard)

•For patients with primary hypothyroidism, the aim is to keep the serum TSH within the reference range. For those with persistent hypothyroid symptoms despite treatment, aim for the lower half of the TSH range (TSH 0.3 to 2.5 mU/l).

•Occasional patients taking levothyroxine (following thyroid cancer; pituitary disease) have different monitoring targets.

HYPERTHYROIDISM

• A serum TSH < 0.1 mU/l, with either a raised FT4 or FT3 indicates hyperthyroidism.

•Patients with hyperthyroidism should be referred to specialist services.

•Once hyperthyroidism is confirmed, therapy includes beta blockers. If symptoms are severe, or unstable cardiovascular state (eg. AF), carbimazole can be initiated in primary care.

PREGNANCY

•Interpretation of thyroid function tests needs modification during pregnancy, to encompass trimester-specific reference ranges and differing clinical priorities.

•Pregnant patients with thyroid disorders should generally be managed in medical obstetric clinics or with close obstetrician-physician liaison.

•People at high risk of thyroid dysfunction are recommended to have thyroid function checked prior to pregnancy or as soon as possible after pregnancy is confirmed.

•Patients treated with thyroxine replacement generally require an increase in the dose of thyroxine by 25µg daily as soon as pregnancy is confirmed.

AMIODARONE & LITHIUM

•People taking amiodarone and lithium salts should have thyroid function testing before treatment, and every 6 months thereafter.

THYROID NODULES

•The discovery of a (new) discrete thyroid nodule should be considered as suspected cancer. The TSH should be checked and the patient referred under the 2 week rule.

•In the presence of airway obstruction or stridor, referral should be as an emergency.

•The primary investigation of a new thyroid nodule is fine needle aspiration cytology. Neck ultrasound is not recommended prior to referral.

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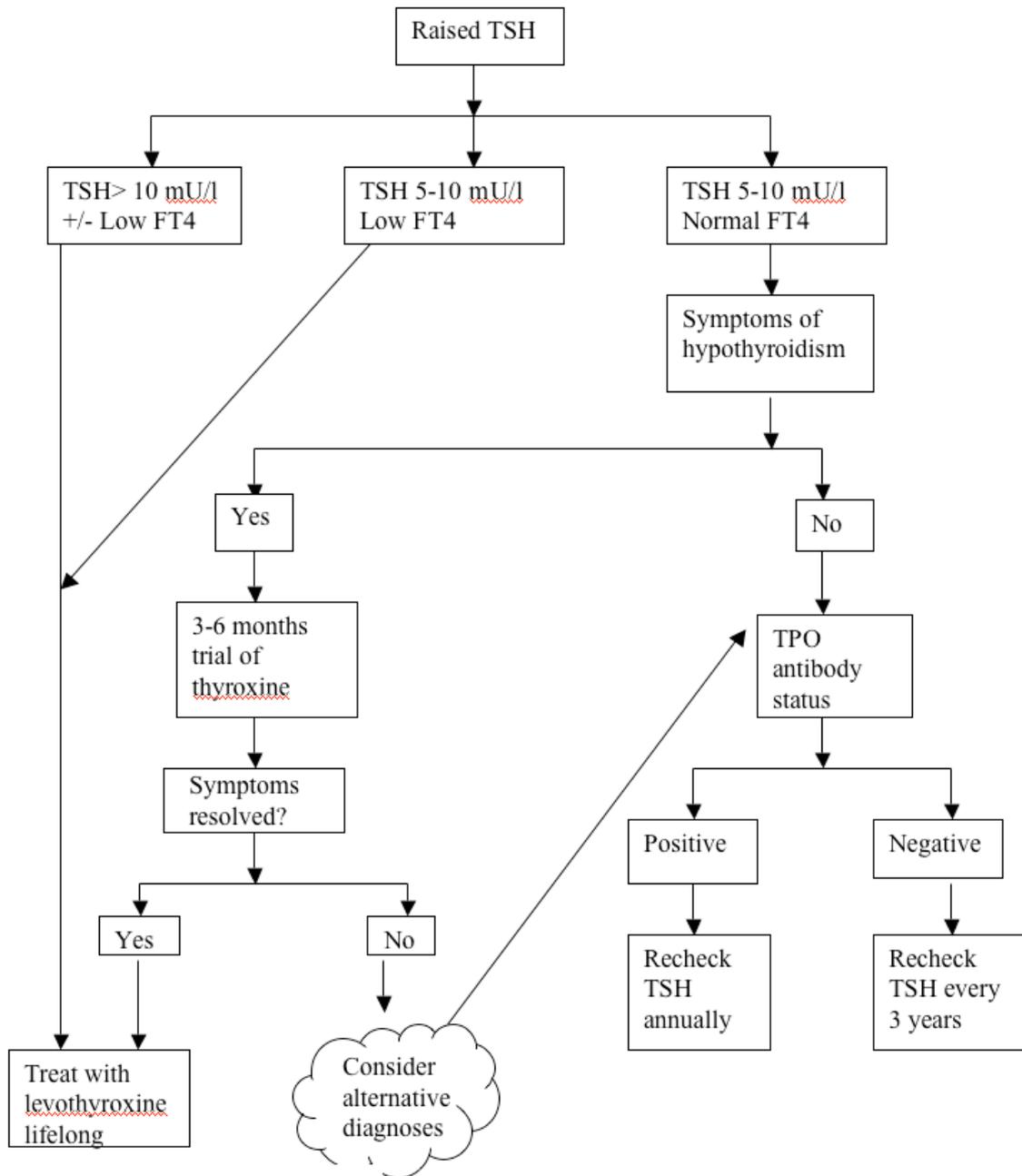
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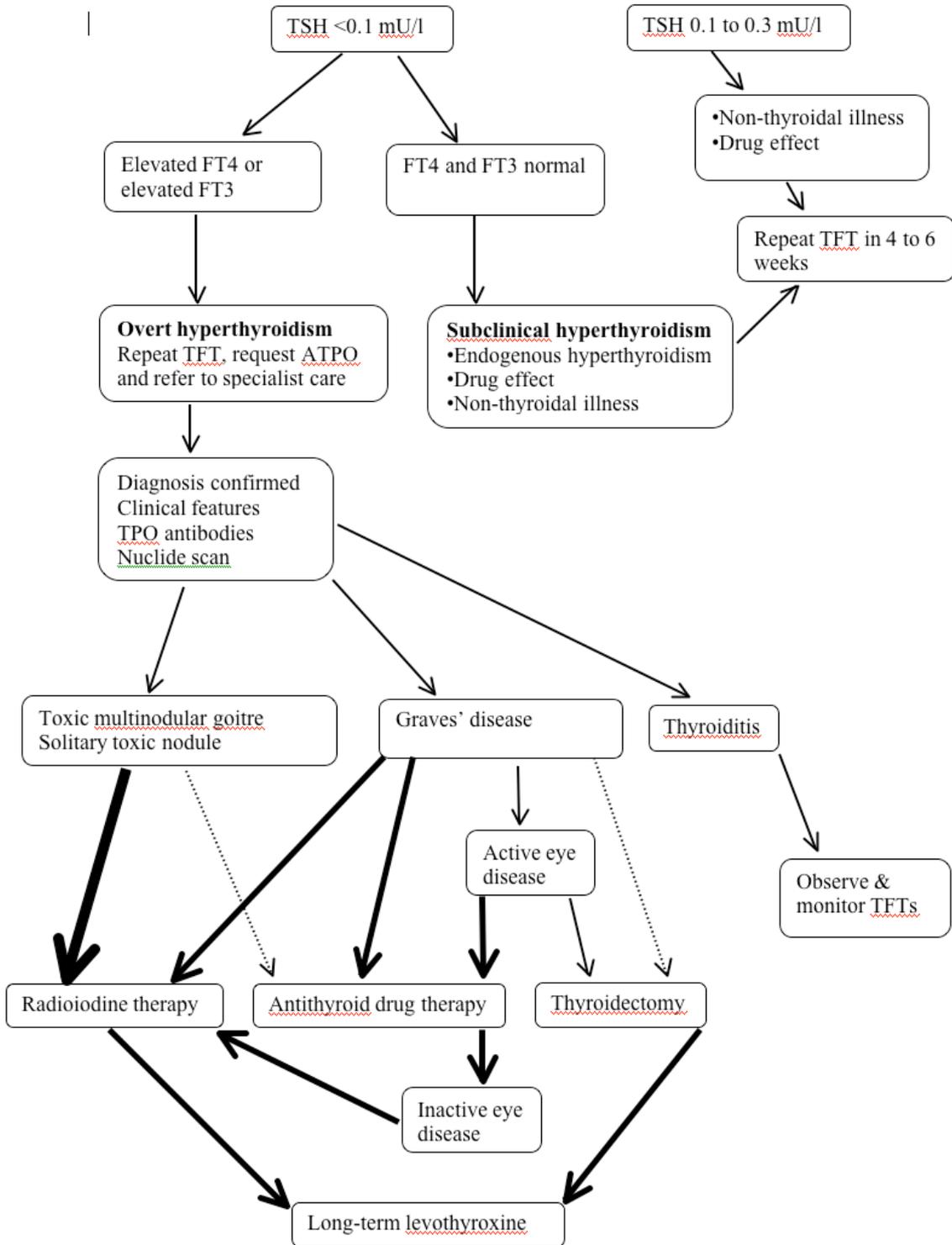
APPENDIX 1

Algorithm for the Pragmatic Management of Primary Hypothyroidism in Non-pregnant Adults



APPENDIX 2

Algorithm for initial investigation and management of hyperthyroidism in adults



APPENDIX 3

Patient information about anti-thyroid drug treatment

You have been started on treatment with carbimazole or propylthiouracil (anti-thyroid drugs) to control the activity of your thyroid gland. These drugs have been in use for more than 50 years and are safe. There are 2 possible side effects that you need to be aware of:

- About 1 in 20 people experience an itchy rash. This is annoying but normally goes away after 1 week, even if you continue the medication. You may wish to get anti-histamine tablets from the chemist or your doctor to help the itch.
- More rarely, in about 1 in 500 people, the drugs can cause the white blood cells to disappear from your blood. This is a serious problem and you would feel very unwell, with a high temperature (fever), sore throat and mouth/tongue ulcers. If this happens to you, you must stop taking the anti-thyroid drugs immediately. You must obtain a blood test ("full blood count") to measure the white blood cells on the same day. Contact your own doctor, the Accident and Emergency dept. or your hospital endocrinologist, to get the blood test. *Take this card with you. Do not carry on taking the medication until you know that it is safe to do so from the result of your blood test.*
- Most people take anti-thyroid drugs with no problems. You will start to feel a little better after 7 to 10 day's treatment.

APPENDIX 4

Information for patients having radioiodine for hyperthyroidism

What is hyperthyroidism?

Your thyroid gland is in your neck, in front of your windpipe. It produces a hormone called thyroxine which acts as your 'body clock', keeping your body working properly. Thyroxine has a direct effect on your heart rate, bowel activity, skin and organs. Hyperthyroidism (also known as Graves' disease, thyrotoxicosis and overactive thyroid) develops when your thyroid gland produces too much thyroxine, making your body clock run too fast.

What is radioiodine treatment?

Radioiodine treatment uses radioactive iodine to cure hyperthyroidism. The radioactivity destroys the overactive thyroid tissue and slows down the production of thyroxine. The thyroid gland uses most of the iodine, so only a small amount of radioactivity is needed.

What about my tablets?

If you have been given tablets to control your hyperthyroidism, you will need to stop taking them before your radioiodine treatment starts. The letter giving you your appointment for radioiodine treatment will tell you when to stop taking your tablets. You can only have radioiodine treatment after you have stopped taking your tablets, so please follow the instructions carefully. Also, if you are taking any tablets which contain iodine or kelp (a seaweed which contains iodine), such as vitamin or mineral supplements, you will need to stop taking them at least a week before being treated with radioiodine. (If you have thyroid problems it is best not to take any tablets or vitamin supplements which contain iodine or kelp.)

How is the radioiodine given?

The radioiodine is given either as a drink or as a capsule. The drink tastes just like water and only contains a small amount of radioiodine. The capsule looks like those used for many other medicines and you swallow it whole with a drink of water.

How long does the radioiodine take to work?

It can take between a few weeks and several months for the treatment to work. Most people with hyperthyroidism (80–90% of people) are cured by a single dose of radioiodine. If the treatment has not worked within six months, it can be repeated.

Is radioiodine treatment dangerous?

No, its safety record is excellent. Radioiodine treatment has been given to millions of people since it was introduced in the early 1940s.

Where else in the body does radioiodine go?

Most of the radioiodine goes to the thyroid gland within a few hours. The rest will pass out of your body in your urine during the first few days after treatment. How long this will take depends on how much you are given.

Can I have the treatment if I am pregnant or breast feeding?

No. Radioiodine can harm unborn babies and babies that are being breast fed. You will not be given radioiodine treatment if you are pregnant or wish to continue breast feeding. You should avoid getting pregnant for six months after your treatment.

Are there any risks in having children afterwards?

No effects on the unborn babies of women who have been treated with radioiodine more than six months before they got pregnant, or on the health of those children, have been shown in over sixty years of experience in using radioiodine treatment. The treatment does not affect a woman's fertility.

Can I father children after radioiodine treatment?

Men should be careful not to father children for four months after radioiodine treatment. The treatment does not affect a man's fertility.

Will there be any danger to my family or friends?

After your radioiodine treatment, your body will contain some radioactivity, which will decrease every day. If you follow the advice you are given, other people may receive only an insignificant radiation dose from you. You will be able to continue shopping, cooking and doing other day-to-day household activities as normal. However, you will need to take some simple precautions for some time (normally about 11 days) after your treatment to stop your family, friends and other people coming into contact with too much of the radiation.

How long you will need to do these things will depend on the amount of radioiodine you have been given. Your specialist will give you advice on the precautions at least a week before your treatment. You can travel home by public transport as long as you do not spend more than one hour sitting next to the same person on the bus, train or tube. You can drive yourself home. If someone else is driving you home, you should sit on the back seat, as far away from them as possible.

Hygiene

- Most of the radioiodine leaves your body in your urine and sweat during the first few days after your treatment. Drinking plenty of fluids and going to the toilet a lot will speed this up process.
- Men should urinate (wee) sitting down on the toilet to avoid getting radioiodine on the edge of the toilet.
- After going to the toilet you should flush it twice.
- Always wash your hands well after going to the toilet.
- Make sure that no one else uses your towels and face cloths.
- Wash all your crockery and cutlery thoroughly.

Other precautions

You will be advised about the following activities at least a week before your treatment is given. How long these precautions will apply for will depend on the amount of radioiodine you receive. Different precautions may apply for different lengths of time, but some may be for up to two to four weeks.

For the time advised:

- Limit your contact with children, especially children under 3 years of age. If you have your own children or have a job where you have contact with children, it is important to talk to the specialist about this as soon as possible.
- Stay more than an arm's length away from other people.
- Sleep alone.

- Take a few days off work if your job brings you into close contact with other people.
- Avoid going to places like cinemas, theatres, pubs and restaurants, where you may be in close contact with other people.
- Avoid travelling on public transport, apart from your journey home from hospital.

Carry the card

The physicist will give you a card with the details of your treatment. You should carry this with you until you no longer have to follow any of these instructions. You should also carry the card with you if you are travelling through ports or on international flights for six months after treatment. Some security devices at airports are so sensitive that they may detect that you have had radioiodine treatment even after this length of time.

Will I need to see a doctor after the radioiodine treatment?

Yes, you will need to see either the doctor you saw at the clinic or your family doctor. You will have to have regular blood tests to monitor how the treatment is affecting your thyroid gland.

Are there any short-term side effects?

Most people notice no side effects from the treatment. A few people develop symptoms of an overactive thyroid (such as palpitations and sweating), usually five to ten days after the treatment. For this reason, your doctor may tell you to take a tablet called a beta-blocker for a few weeks after the treatment, and they may tell you to start taking your antithyroid tablets again.

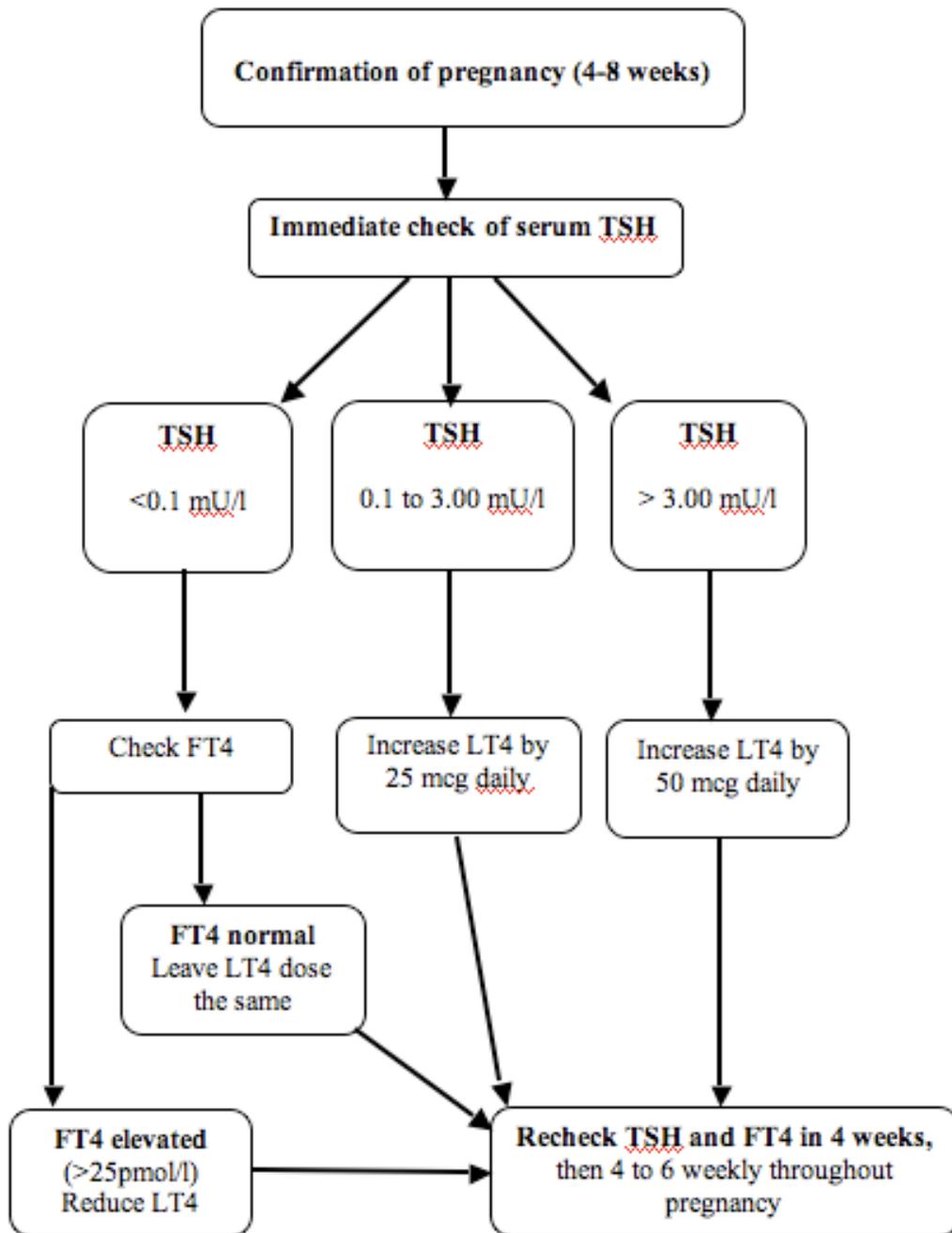
Your thyroid gland may become underactive at a time ranging from a few months after treatment to many years later, causing 'hypothyroidism'. In a small number of people, this happens quite soon after radioiodine treatment. The blood tests will show whether this has happened. If your thyroid gland does become underactive, your doctor will give you thyroxine tablets to replace the thyroxine that your thyroid gland is no longer producing. The tablets are very safe and contain a man-made version of the natural thyroxine that your body is unable to produce enough of. It may take a little time to find the right dose of thyroxine for you. You will not have to pay prescription charges for thyroxine tablets.

Thyroid eye disease (which can develop in Graves' disease) may get worse after the treatment. The doctor will discuss this with you before you have the treatment and may suggest that you take a steroid called prednisolone for a month or two after the treatment.

From RCP guidelines 2007

APPENDIX 5

Monitoring of levothyroxine replacement during pregnancy



APPENDIX 6

Additional resources for Drs/ PAMs

BTF/ACB UK Guidelines for use of thyroid function tests: July 2006

www.british-thyroid-association.org/info-for-patients/Docs/TFT_guideline_final_version_July_2006.pdf

RCP Radioiodine in the management of benign thyroid disease 2007

<http://www.rcplondon.ac.uk/pubs/contents/0621b67a-4880-4a1b-9942-57a666efee4a.pdf>

BTA/ BAES/ RCP Guidelines for management of thyroid cancer 2007

http://www.british-thyroid-association.org/news/Docs/Thyroid_cancer_guidelines_2007.pdf

Endocrine Society. Guidelines for management of thyroid disease in pregnancy and postpartum 2007

www.endo-society.org/guidelines/final/upload/Clinical-Guideline-Management-of-Thyroid-Dysfunction-during-Pregnancy-Postpartum.pdf

THYROID MANAGER: Online updated textbook of thyroidology

www.thyroidmanager.org

Systematic review 2008: Management of hypothyroidism in adults. Vaidya & Pearce

www.bmj.com/cgi/content/full/337/jul28_1/a801

Endocrine society Consensus statement 2004: Management of subclinical thyroid dysfunction. Surks MI et al.

<http://jama.ama-assn.org/cgi/content/full/291/2/228>

Patient support organizations

British Thyroid Foundation

<http://www.btf-thyroid.org/>

Butterfly Thyroid Cancer Trust

enquiries@butterfly.org