

**Request to Share Care and Agreement Form**

**Liothyronine for a selected cohort of adults with hypothyroidism**

**Shared Care Protocol: Guideline Number 4; Version number 2.1**

**This Request to Share Care provides Key Primary Care Information on responsibilities and monitoring. The aim is to support the GP to agree to share care arrangements. Refer to Full Shared Care Protocol for further information (page 4 onwards).**

**GP to review and must respond to provider Trust request to share care within 2 weeks using form provided on page 3.**

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| **For Completion by Specialist (with Shared Care Agreement Form)**Addressograph label**Patient name**     **DOB**     **NHS number**     **Drug(s) Dose and Route at handover:** Liothyronine       micrograms (orally)       times daily**Indication:** Treatment of hypothyroidism (persistent symptoms despite optimal dosage with levothyroxine and alternative causes of symptoms excluded)**Date of first prescription by specialist:**       **Patient weight (kg):**      **Estimated date for prescribing to be continued by the GP:**      **Next monitoring tests due and dates:**      **Specialist additional comments/advice:**       |

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| **Key Primary Care Information (refer to Full Shared Care Protocol for further information)****GP RESPONSIBILITIES*** Consider request to shared care arrangements and prompt completion and emailed return of signed response to the specialist using the Shared Care Agreement Form within 14 days of its receipt.
* If shared care accepted prescribe liothyronine once patient is clinically stable in line with protocol.
* Arrange, record and share ongoing monitoring and take appropriate action as per protocol and advised by specialist (see monitoring table), ensuring practice systems are in place to recall patients for monitoring blood tests.
* Re-iterating with the patient that non-attendance for blood testing may lead to withdrawal of the medication. Further help and advice can be sought from the hospital specialist team.
* Ascertaining the reason for non-completion of routine blood testing, if one test is missed.
* Appropriately prompt notification to the hospital specialist of any significant and relevant changes in the patient’s condition, medication dose, or of an adverse reaction according to the protocol and if the patient fails to attend for blood monitoring.
* Ensure no drug interactions with other medicines.
* Change dose or stop treatment in line with protocol and as advised by specialist.
* Liaising with the initiating clinician if the medicine becomes less effective and patient complains of symptoms.

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| **MONITORING AND ACTIONS TO BE TAKEN****Monitoring Table – see GP monitoring highlighted in grey.**

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| **Test** | **Indication** | **Specialist** **pre-treatment baseline** | **Specialist during treatment initiation** | **GP ongoing monitoring** | **Specialist ongoing monitoring** |
| Thyroid function tests including Free T3 | Baseline and ongoing assessment including dose adjustment  | **✓** | After at least 3 months of treatment and until treatment dose is stabilised | Annual | Provide advice to GP if required |

* monitoring is by TSH levels measured from blood tests taken prior to the morning medication.

 * aim to keep TSH below 2.5 and in the normal range (target range will vary between patients and should be agreed by the endocrinologist at the beginning of treatment)
* TSH in normal range - no change required.
* TSH less than normal range - seek specialist advice, likely resume at lower dose.
* following a dose change a repeat test will be required at 6-8 weeks.
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* The expectation is that this information along with the full protocol provides sufficient information to enable GPs to be confident to take on the clinical & legal responsibility for prescribing and monitoring.
* Prescribing and monitoring responsibility will only be transferred under this shared care protocol when:
* Specialist has initiated treatment and prescribed/monitored treatment for initial stabilisation period.
* Specialist has provided pre-treatment counselling and discussed patient responsibilities, preferences and obtained consent to shared care arrangements.
* Specialist and patient have completed and signed the shared care agreement form (page 3).

**Shared Care Agreement Form**

**This form is used to agree shared care between the specialist, patient and GP.**

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| **Specialist and patient agreement****By signing below we accept:*** the Herts and West Essex Area Prescribing Committee [shared care principles](https://www.hweclinicalguidance.nhs.uk/all-clinical-areas-documents/download?cid=1739&checksum=752d25a1f8dbfb2d656bac3094bfb81c) (HWE APC) and
* the requirements and responsibilities defined in this drug specific shared care protocol.

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| **Specialist name:**       | **Patient name or addressograph label:** |
| **Designation:**       |
| **Provider Trust:**       |
| **Direct telephone number:**      |
| **Email:**      **Email (for use by GP to respond to request to share care):**       |
| **Date:**       | **Specialist Signature:**       |

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| **Date:**      | **Patient signature or specialist confirmation of patient agreement to shared care arrangement:**      |

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| **GP response to shared care****Please return to specialist within two weeks of receipt of request to share care.*****This form is to be completed by the GP who is requested to share care.***I agree to accept shared care for this patient as set out in this shared care protocol and HWE [shared care principles](https://www.hweclinicalguidance.nhs.uk/all-clinical-areas-documents/download?cid=1739&checksum=752d25a1f8dbfb2d656bac3094bfb81c) [ ] I do not accept shared care for this patient [ ] My reason(s) for not prescribing are given below:    \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Please note that GP agreement is voluntary, with the right to decline to share care if for any reason you do not feel confident in accepting clinical responsibility. Refusal should not be for financial reasons.

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| **GP name:**      | **Practice address /stamp:**       |
| **Direct telephone number:**       |
| **Email:**       |
| **Date:**       | **GP Signature:**       |

**Please return a copy of the completed form to the requesting specialist within two weeks of receipt of request to share care (preferably by email).** |

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| 1. Specialist to retain copy in patient’s hospital records.
2. Copy to be given to patient.
3. GP to retain copy in patient’s notes.
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**Full Shared Care Protocol**

**Liothyronine for a selected cohort of adults with hypothyroidism**

**Shared Care Protocol: Guideline Number 4; Version number 2.1**

**This full protocol provides prescribing and monitoring guidance. It should be read in conjunction with HWE** [**shared care principles**](https://www.hweclinicalguidance.nhs.uk/all-clinical-areas-documents/download?cid=1739&checksum=752d25a1f8dbfb2d656bac3094bfb81c)**,** [**Summary of Product Characteristics (SmPC)**](https://www.medicines.org.uk/emc) **and the** [**BNF**](https://bnf.nice.org.uk/)**.**

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| **BACKGROUND AND INDICATION(S) FOR USE****NB** This shared care protocol is for new and existing patients, **prescribers in primary care should not initiate liothyronine**.**New patients**: consultant NHS Endocrinologists may offer liothyronine in rare situations for patients who meet NHS initiation criteria (outlined below). GPs should only take on prescribing of liothyronine where the treatment is recommended by a consultant NHS Endocrinologist, after a successful 6-month trial has been carried out. **Existing patients**: GPs **should not** take on prescribing of liothyronine for patients initiated in private clinics, abroad, or via other self-funded routes. Where patients are unable to continue to self-fund, they should **not** be offered NHS prescribing of liothyronine **unless they are reviewed against national criteria by a consultant NHS Endocrinologist**, with consideration given to switching to levothyroxine monotherapy where patients do not meet NHS initiation criteria (see liothyronine review algorithm). Patients who have been seen privately retain the option of being referred back to the private service for private prescription.NHS prescribing of natural thyroid/unlicensed products is not supported. This is in line with [NHSE Liothyronine – advice for prescribers](https://www.england.nhs.uk/long-read/liothyronine-advice-for-prescribers/) which states: “The prescribing of unlicensed liothyronine and thyroid extract products (e.g. Armour thyroid and ERFA Thyroid) is not recommended as the safety, quality and efficacy of these products cannot be assured:* compounded thyroid hormones
* iodine containing preparations
* dietary supplementation.”

For patients with proven primary hypothyroidism levothyroxine is the treatment of choice. The vast majority of patients are well controlled, asymptomatic and with a TSH that is in the normal range. A small minority requiring doses above 100 micrograms of levothyroxine (T4) remain symptomatic despite optimal biochemical replacement with levothyroxine. Liothyronine (sometimes known as T3) has a similar action to levothyroxine but is more rapidly metabolised and has a more rapid effect. The price (NHS Drug Tariff) of liothyronine has risen significantly. A review by NICE (NG145, published November 2019) concluded that combination treatment with levothyroxine and liothyronine does not offer any important health benefits compared with levothyroxine monotherapy. However, the committee noted beneficial effects of combination treatment in small subgroups of patients (those reporting still feeling unwell with levothyroxine monotherapy) and agreed that in this group adding liothyronine could potentially have greater benefit than in the general population. The liothyronine – advice for prescribers published by the NHS states: “For new patients. liothyronine as monotherapy or in combination with levothyroxine should only be initiated by an NHS consultant endocrinologist, and only if the patient’s symptoms persist while taking levothyroxine.A small number of patients who take levothyroxine have persistent symptoms despite their [TSH](https://labtestsonline.org.uk/tests/thyroid-function-tests) remaining in the reference range. Before initiating liothyronine, consider excluding other potential causes of persistent symptoms listed in box 1 and:* Confirm with the patient that they are taking their levothyroxine as intended:
* check the patient’s adherence to their levothyroxine
* establish the frequency of any missed doses.
* check that levothyroxine is taken at least 1 hour before food (including dietary fibre, milk and soya products) and 4 hours before or after antacids, calcium or iron supplements
* establish whether there have been any changes in the patient’s levothyroxine tablet formulations
* consider consistently prescribing a specific product known to be well tolerated by the patient. If symptoms or poor control of thyroid function persist (despite adhering to a specific product), consider prescribing levothyroxine oral solution as per [MHRA](https://www.gov.uk/drug-safety-update/levothyroxine-new-prescribing-advice-for-patients-who-experience-symptoms-on-switching-between-different-levothyroxine-products)
* In some cases, a retrospective review of the original diagnosis of overt hypothyroidism may be necessary. If there is no biochemical evidence of overt hypothyroidism, a gradual withdrawal of all thyroid hormone preparations is indicated.”

**Box 1: Possible causes of persistent symptoms in euthyroid patients on levothyroxine:**

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| **Endocrine / autoimmune** | **Haematol-ogical** | **End organ damage** | **Nutritional** | **Metabolic** | **Drugs** | **Lifestyle** | **Other** |
| Diabetes mellitusAdrenal insufficiency Hypopituita-rismCoeliac diseasePernicious anaemia | AnaemiaMultiple myeloma | Chronic liver diseaseChronic kidney diseaseCongestive cardiac failure | Deficiency of any of the following:Vitamin B12FolateVitamin DIron | ObesityHypercalc-aemiaElectrolyte imbalance | Betablock-ersStatinsOpiates | Stressful life events Poor sleep patternWork-related exhaustionAlcohol excess | Obstructive sleep apnoeaViral and post viral syndromes including long covidChronic fatigue syndromeCarbon monoxide poisoningDepression and anxietyPolymyalgia rheumaticaFibromyal-giaOestrogen Deficiency (menopause) |

Sometimes TSH levels remain persistently elevated despite adequate levothyroxine replacement. A summary of the most common causes is shown in Figure 1:Figure 1: Causes of persistently elevated TSH despite apparently adequate levothyroxine replacement

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| **Decreased bio-availability** | **Increased levothyroxine requirements** | **Other factors** |
| Insufficient replacement dose of levothyroxine.Poor medication adherence.Concomitant ingestion of iron tablets, calcium, cholestyramine, colesevalam, soy or caffeine.Malabsorption either due to hypochlorhydria (proton pump inhibitor therapy, *H. pylori* infection, autoimmune atrophic gastritis, gastrectomy, gastric by-pass) or coeliac disease.Inflammatory bowel disease. | Pregnancy, oral oestrogen.Weight gain.New medication prescribed which increases levothyroxine metabolism (e.g., rifampicin, carbamazepine, and phenytoin).Nephrotic syndrome with heavy proteinuria. | Addison's disease/primary adrenal insufficiency.TSH assay interference/macro-TSH. |

After a review, if the decision is to withdraw liothyronine prescribed as monotherapy or in combination with levothyroxine, liothyronine should not be stopped abruptly, withdrawal should be gradual in line with NHS consultant endocrinologist recommendations and may take many months to complete. When reducing or stopping liothyronine therapy, 5 mcg of liothyronine should be replaced by about 15 mcg of levothyroxine (a 1:3 ratio).20–25 micrograms of liothyronine sodium is equivalent to approximately 100 micrograms of levothyroxine sodium. Liothyronine should not be used in pregnancy. |

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| **DOSAGE, ROUTE OF ADMINISTRATION AND DURATION OF TREATMENT**Also refer to page 1/2.* Combined levothyroxine/liothyronine should **not** be used in patients needing less than 100 micrograms of levothyroxine daily. This is because: (1) these patients are almost certainly producing endogenous liothyronine; (2) it is difficult to prescribe less than 10 micrograms liothyronine, therefore the ratio in such patients would be heavily weighted to liothyronine.
* Where used once daily, the liothyronine can be taken at the same time of day as the levothyroxine.
* To be used long-term once patient has been proven to benefit and there are no contraindications.

**Adult dose and administration*** Initially 10–20 micrograms daily; in 2–3 divided doses, dose should be increased gradually, smaller initial doses given for the elderly.
* When liothyronine is used in combination with levothyroxine, it is recommended to substitute the liothyronine at about 1:17th of the current levothyroxine dose; and reducing levothyroxine dose by 3× liothyronine dose. See Figure 2 for example regimens.

**Figure 2: Example daily dose regimens.** This would be undertaken by specialists who may advise halving levothyroxine tablets to get to appropriate dose regimens.A table with black text and white text  Description automatically generated* Given the short half-life of liothyronine, splitting doses across 24 h is recommended for many people.

**Preparations available (oral):** Liothyronine 5 microgram tablets, Liothyronine 10 microgram tablets,Liothyronine 20 microgram tablets, Liothyronine 5 microgram capsules, Liothyronine 10 microgram capsules, Liothyronine 20 microgram capsules.Prescribe the product with the lowest acquisition cost unless specific patient factors require another formulation. Swallowing difficultiesPlease refer to the [‘specials’ alternative guidance](https://gbr01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.hweclinicalguidance.nhs.uk%2Fall-clinical-areas-documents%2Fdownload%3Fcid%3D2274%26checksum%3D95f8d9901ca8878e291552f001f67692&data=05%7C02%7Cheernamehta%40nhs.net%7Ccba67ac584344a90298108dcafcc3bcd%7C37c354b285b047f5b22207b48d774ee3%7C0%7C0%7C638578538908037976%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=drWPIVzT4RkMn0VJJa96%2F2dIm19xPNtqcc0yghL%2FsEA%3D&reserved=0) for a list of commonly prescribed medicines and alternative methods of administration for patients with swallowing difficulties, feeding tubes or for patients prescribed unlicensed ‘specials’ medication. Each entry takes into account alternative medicines, formulations, cost and licensing. This list is not exhaustive. As not all medicines are listed, please contact the initiating specialist if required for individual patient advice if a patient has a swallowing difficulty. |

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| **SPECIALIST RESPONSIBILITIES INCLUDING PRE-TREATMENT ASSESSMENT****Existing patients:*** Assess patient using the liothyronine review algorithm to establish whether the patient meets NHS initiation criteria.
* Where patient **does not** **meet** NHS initiation criteria, consideration should be given to switching to levothyroxine monotherapy. Patients who have been seen privately retain the option of being referred back to the private service for private prescription.
* Where patient **meets** NHS initiation criteria, specialist to obtain support for continued use from:
	+ Endocrinology MDT/ Endocrinologist
	+ DTC secretariat or Trust’s High-cost drugs panel (or equivalent)
	+ the patient’s GP

Specialist to provide information regarding how the patient meets the NHS initiation criteria, i.e. confirmation that:* + alternative causes of hypothyroid symptoms have been investigated or reasonably excluded (see box 1)
	+ the patient had a minimum of 6 months’ trial of levothyroxine monotherapy
	+ symptoms of hypothyroidism persisted despite optimal dosage with levothyroxine specialist to provide information on the range and severity of hypothyroid symptoms experienced by the patient prior to starting liothyronine, **PLUS** details of the clinical improvement in symptoms that demonstrate sufficient benefit to justify continued treatment
* Once approval received (from Endocrinology MDT, DTC secretariat or Trust’s High-cost drugs panel [or equivalent] and the patient’s GP), specialist to complete shared care agreement and advise GP to maintain current prescribing.
* Patients who have not had a review and are already established on liothyronine as monotherapy or in combination with levothyroxine should have a review by an NHS consultant endocrinologist. The NHS consultant endocrinologist should:
	+ review the patient and consider switching to levothyroxine monotherapy where clinically appropriate.
	+ not routinely withdraw liothyronine if NHS initiation criteria have been met, for patients who feel well on liothyronine with a serum [thyroid stimulating hormone (TSH)](https://labtestsonline.org.uk/tests/thyroid-function-tests) within the reference range.
	+ consider, for people stable on combination therapy, trialling levothyroxine monotherapy to see whether the liothyronine is still benefiting them.
	+ advise primary care prescribers on reviewing or adjusting a patient’s treatment where this is the responsibility of the primary care prescriber.

**New patients:*** Ensure that all alternative causes of symptoms have been investigated or reasonably excluded (see box 1).
* Assess patient, establish the diagnosis, and confirm the need for liothyronine (i.e. symptoms of hypothyroidism persist despite optimal dosage with levothyroxine following a minimum 6-month trial of levothyroxine).
* Liothyronine monotherapy **is not recommended** in the management of hypothyroidism except in the following situations:
	+ Some cases of thyroid cancer (prescribing and related responsibilities should remain with the specialist as this is for short-term use, this is not suitable for continuation in primary care)
	+ Rare cases of levothyroxine induced liver injury
* Before considering a trial of liothyronine, it is recommended to confirm that a diagnosis of primary hypothyroidism is substantiated (documented TSH ≥10 mU/L; and/or low FT4 pretreatment with thyroid replacement hormones). If a diagnosis of overt hypothyroidism cannot be confirmed, consider a trial without levothyroxine with a repeat serum TSH after 6 weeks.
* Before considering a trial of liothyronine, it is recommended that comorbidities are investigated or reasonably excluded as the cause of the persistent symptoms (see page 5)
* Before considering a trial of liothyronine, it is recommended to adjust levothyroxine dose to maintain serum TSH toward the lower end of the reference range for 6 months. When considering levothyroxine adjustment, it may be preferable to have a low but not suppressed serum TSH during levothyroxine monotherapy if this improves symptoms, rather than starting on liothyronine.
* Before initiating liothyronine/levothyroxine combination therapy, it is recommended that TSH levels are detectable and within reference range. Levothyroxine dose reduction should be considered before initiating liothyronine in individuals with undetectable TSH levels.
* Discuss with patient the uncertain benefits, likely risks of over-replacement (atrial fibrillation, osteoporosis and bone fracture) and lack of long-term safety data.
* Undertake baseline and ongoing assessment of physical and psychological wellbeing to assess response to treatment. A quality of life (QoL) questionnaire should be used pre and post any trial of liothyronine, to assess response and confirm sustained benefit with combination therapy (preferably ThyPRO39; Watt et al.6). At the end of the minimum 6-month trial, a review of symptoms should be undertaken to establish whether there has been an improvement; a clinically adjudged improvement in symptoms (consultant to specify which ones) would be used to demonstrate sufficient benefit to justify continued treatment.
* Undertake baseline ECG if deemed appropriate.
* Optimise replacement with levothyroxine.
* Prior to 6-month trial of liothyronine, specialist to obtain support from:
	+ Endocrinology MDT/ Endocrinologist
	+ DTC secretariat or Trust’s High-cost drugs panel (or equivalent)
	+ the patient’s GP

Specialist to provide information regarding how the patient meets the NHS initiation criteria, i.e. confirmation that:* + alternative causes of hypothyroid symptoms have been excluded (see page 5)
	+ the patient has had a minimum of 6 months’ trial of levothyroxine monotherapy
	+ symptoms of hypothyroidism persist despite optimal dosage with levothyroxine, including the range and severity of hypothyroid symptoms experienced by the patient
* Once approval for trial obtained from Endocrinology MDT, DTC secretariat or Trust’s High-cost drugs panel (or equivalent) and the patient’s GP - initiate trial of liothyronine and levothyroxine.
* Patients should be counselled regarding the risk of arrhythmias, accelerated bone loss and stroke associated with iatrogenic hyperthyroidism and the need for long-term monitoring.
* Optimise replacement doses to achieve a normal TSH.
* Monitoring of levothyroxine replacement therapy is recommended in individuals with primary hypothyroidism with serum TSH measurements, with additional free T4 measurements if TSH is outside the reference range.
* Monitor and review after 6 months to determine benefit and whether patient wishes to continue with combination replacement.
* Obtain agreement and consent to share care. Complete and sign Specialist and patient agreement section of Shared Care Agreement form. Document in patient’s notes and transfer once patient stabilised.
* Request for GP confirmation of acceptance of shared care by secure emailing of request to share care, protocol and completed agreement form, allowing 2 weeks for response.
* Receipt and recording in patient records/notes that GP has / has not accepted shared care and ensuring appropriate action if not (specialist to continue to prescribe/monitor).
* Prescribe and monitor for initial stabilisation period of 6 months.
* Continue to review the patient at agreed specified intervals, sending a written summary to the GP whenever the patient is reviewed.
* Monitor response to treatment, adverse effects and need to continue therapy. Notify the GP of any changes to dose or cessation of therapy.
* Notify GP if patient does not attend clinic and advise on action to take.
* Provide any other advice, information or support for the GP if required. Communicate any clinically important issues and action to be taken.
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| **GP RESPONSIBILITIES**Refer to page 1 and GP Considerations for Shared Care (page 10). |

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| **PATIENT RESPONSIBILITIES IN COOPERATION WITH SPECIALIST AND GP*** Confirm their agreement with the decision to move to a shared care model for their ongoing care and their understanding of the shared care agreement.
* Consent to share care and complete/sign Specialist and patient agreement section of Shared Care Agreement form.
* Confirm their understanding of the treatment and agreeing to contact the specialist/GP if they subsequently do not have a clear understanding of the treatment (patient to be provided with relevant contact details for GP/specialist in and out of hours).
* Attending for blood monitoring and follow up hospital or GP appointments.
* Ensuring a list of all medications are brought to all GP surgery, outpatient and A&E consultations.
* Reporting any change in symptoms and adverse effects promptly to the clinician who is currently prescribing.
* Confirm that no new medicines are started (including over the counter preparations) unless this has been discussed with the GP, specialist or pharmacist.
* Alert GP and/or specialist of any changes of circumstance which could affect management of disease e.g. plans for pregnancy; plans to move/change GP practice.
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| **DISPENSING PHARMACIST RESPONSIBILITIES** Ensure the correct dose and the same manufacturer for on-going prescriptions (as brands without a UK licence may not be bioequivalent – see BNF).  |

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| **MONITORING AND ACTIONS TO BE TAKEN**Refer to page 2. |

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| **SIDE EFFECTS AND ACTIONS TO BE TAKEN (REFER TO** [**BNF**](http://www.bnf.org/bnf/index.htm) **AND** [**SmPC**](http://www.medicines.org.uk/emc) **for full details)**GP to liaise with specialist if any side effects are a cause for concern.

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| **Side Effect** | **Action to be taken by GP** |
| Angina / Arrhythmia | Stop liothyronine and discuss with specialist |
| Palpitations, restlessness, tremor, diarrhoea, headache, muscle cramps | Continue liothyronine, check TSH level and adjust as above if needed |

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| **CONTRAINDICATIONS AND PRECAUTIONS (REFER TO** [**BNF**](https://bnf.nice.org.uk/) **AND** [**SmPC**](http://www.medicines.org.uk/emc) **for full details)****Contraindications:*** Known hypersensitivity to the drug or any of its excipients
* Thyrotoxicosis
* Cardiac arrhythmias
* Angina of effort
* Pregnancy – contact specialist for advice
* Cardiovascular diseases
* Established myocardial ischaemia

**Cautions:*** Ischaemic heart disease: any new presentation or significant worsening of existing ischaemic heart disease should be discussed with the specialist endocrinology team.
* Myxoedema - care must be taken to avoid imposing excessive burden on cardiac muscle affected by prolonged severe thyroid depletion. Particular care is needed in the elderly who have a greater risk of occult cardiovascular disease. Baseline ECG is recommended prior to commencement of liothyronine treatment in order to detect changes consistent with ischaemia. Patients should undergo cardiovascular monitoring, including periodic ECGs, during liothyronine treatment.
* Breast feeding: an increase in monitoring of thyroid function tests may be required, discuss with specialist endocrinology team. Liothyronine sodium is excreted into breast milk in low concentrations. This may interfere with neonatal screening programmes.
* Cardiovascular disorders
* Diabetes insipidus & diabetes mellitus (dose of antidiabetic drugs including insulin may need to be increased)
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| **NOTABLE DRUG INTERACTIONS (REFER TO** [**BNF**](https://bnf.nice.org.uk/) **AND** [**SmPC**](http://www.medicines.org.uk/emc) **for full details)****Common drug interactions****Amiodarone:** predicted to increase the risk of thyroid dysfunction when given with liothyronine. **Carbamazepine:** predicted to increase the risk of hypothyroidism when given with liothyronine. **Digoxin:** predicted to affect the concentration of digoxin.**Hormone replacement therapy:** oral Hormone replacement therapy is predicted to decrease the effects of Liothyronine**Phenobarbital:** predicted to decrease the effects of liothyronine.**Phenytoin:** predicted to increase the risk of hypothyroidism when given with liothyronine. **Primidone:** predicted to decrease the effects of liothyronine. |

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| **CONTACT DETAILS for BACK-UP INFORMATION / ADVICE**

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|  | **West Hertfordshire Hospitals NHS Trust** | **East and North Hertfordshire NHS Trust** | **Princess Alexandra****Hospital NHS Trust** |
| **Direct dial for clinicians**  | Via secretaries on ext numbers:76967287780083868033 | Consultant’s secretaries QEII:Dr Winocour - 01438288309Dr Darzy  - 01438288387Dr Al-Sabbagh - 01438288310Dr Narayanaswamy - 01438288387Dr Joharatnam  - 01438288329 | Consultant’s secretaries Lister:Dr Kaplan  - 01438284828Dr George  - 01438284828Dr Zalin  - 01438284090Dr Zac-Varghese  - 01438284090Dr Troke  - 01438285205Dr Solomon  - 01438284482Dr Filipas  - 01438284482  | Diabetes & Endocrine Secretaries:01279 827418/ 827670 |
| **Specialist Team designated nhs.net email** | Endocrinology Nurses - westherts.endocrinenursing@nhs.netand/orEndocrinology - westherts.endocrinology@nhs.net | QEII: diabandendoqeii.enh-tr@nhs.netLister: diabendoadmin.ehn-tr@nhs.net | Diabetes & EndocrineSecretaries: Tpa-tr.diabetes-endo@nhs.nettpa-tr.diabetesadminclinicalcorrespondence@nhs.net |
| **Out of hours contact** | Via switchboard | Via switchboard |  |
| **Pharmacy Team shared care admin nhs.net email** | westherts.medinfowatford@nhs.net | sharedcare.enh-tr@nhs.net  |  |
| **Switchboard** | WGH:  01923 244 366HHGH: 01442 213 141SACH: 01727 866 122 | QEII: 01438 314333Lister: 01438 314333 |  |

**Communication**For any queries relating to this patient’s treatment with liothyronine, please contact the specialist as documented at the top of this document. Read in conjunction with HWE ICB shared care principles document.For advice if you have any concerns contact the specialist team. If unable to contact specialist team or out of hours, contact medical registrar on call. |

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| **SUPPORTING INFORMATION** NHS Items which should not be routinely prescribed in primary care: policy guidance, October 2023. Available online: <https://www.england.nhs.uk/long-read/items-which-should-not-routinely-be-prescribed-in-primary-care-policy-guidance/>NHS Liothyronine – advice for prescribers, August 2023. Available online: <https://www.england.nhs.uk/long-read/liothyronine-advice-for-prescribers/>Use of liothyronine (T3) in hypothyroidism: Joint British Thyroid Association/Society for endocrinology consensus statement, June 2023. Available online: <https://onlinelibrary.wiley.com/doi/full/10.1111/cen.14935>Thyroid disease: assessment and management, NICE Guidance [NG145], November 2019. Available online: <https://www.nice.org.uk/guidance/ng145/chapter/Recommendations>  |

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| **REFERENCES**1. Summary of Product Characteristics. Liothyronine sodium 20 microgram tablets. ADVANZ Pharma. Last revised on the eMC: 12/01/2023. Available online: [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)
2. Joint Formulary Committee. *British National Formulary* (online). London: BMJ Group and Pharmaceutical Press. Available online: <https://bnf.nice.org.uk/>

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**GP Considerations for Shared Care**

This shared care agreement outlines suggested management for the prescribing of the specified drug(s) and indication(s) when the responsibility is shared between the specialist and general practitioner (GP). Sharing of care assumes communication between the specialist, GP and patient. It is important that patients are consulted about treatment and are in agreement with it. The intention to share care should be explained to the patient by the doctor initiating treatment and consent obtained.

Prescribing is to be initiated in secondary care by a provider Trust specialist and will usually be prescribed for 12 weeks unless otherwise stated within the agreed individual shared care protocol**. The expectation is that these shared care guidelines should provide sufficient information to enable GPs to be confident to take on the clinical and legal responsibility for the prescribing and the monitoring of this / these drug(s) in stable patients.** The questions below will help you confirm this:

* Is the patient’s condition predictable or stable?
* Do you have the relevant knowledge, skills and access to equipment to allow you to monitor treatment as indicated in this shared care document?
* Have you been provided with relevant clinical details including monitoring data?
* Have this document and BNF/SmPC provided sufficient information for you to feel confident in accepting clinical and legal responsibility for prescribing?

**If you can answer YES to all of these questions (after reading this shared care guideline), then it is appropriate for you to accept the prescribing responsibility. GPs need to formally accept shared care by completing and returning the form provided within this protocol to the specialist within two weeks of receipt of request to share care.**

If the answer is NO to any of these questions, you should not accept prescribing responsibility. You should respond back to the consultant outlining your reasons for NOT prescribing on the agreement form within two weeks of receiving the request to share care. If you do not have the confidence to prescribe, you still have the right to decline. In such an event, the total clinical responsibility for prescribing the medication and any monitoring required remains with the specialist. Please note that medication cost is not an acceptable reason for refusal to take on shared care.

The prescribing doctor legally assumes clinical responsibility for the drug and the consequences of its useas well as responsibility of monitoring (securing and reviewing blood test results).

Prescribing and monitoring responsibility will only be transferred when the consultant and the GP agree that the patient’s condition is stable or predictable. This will usually be 12 weeks of treatment unless otherwise stated within the agreed individual shared care protocol.

**Approval Information**

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| Version  | 2.1 Updated with wording on swallowing difficulties. 2.0 Harmonisation of Hertfordshire Medicines Management Committee (HMMC) guidance and West Essex Medicines Optimisation Programme Board (WEMOPB) guidance updates include:* Rebadging with HWE ICB and removal of ENHCCG and HVCCG headers
* Review date removed and replaced with standard statement.
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| Developed by | Pharmacy and Medicines Optimisation Team |
| Approved by | HMMC Feb 2021, Area Prescribing Committee June 2024 |
| Date approved/updated | Published and approved February 2021 and, APC June 2024 |
| Review date:  | The recommendation is based upon the evidence available at the time of publication. This recommendation will be reviewed upon request in the light of new evidence becoming available.  |
| Superseded version | 1.0* Additional guidance on excluding other causes of persistent symptoms whilst on levothyroxine.
* Causes of persistently elevated TSH despite apparently adequate levothyroxine replacement
* Dose regime guidance updated in line with NHSE recommendations and joint consensus statement.
* When NHS consultant endocrinologist review is warranted
* Additional guidance to be followed prior to starting new patients on liothyronine to ensure appropriateness of liothyronine.
* Monotherapy wording updated based on RMOC guidance and reiterated in the joint consensus statement.
* Guidance on which quality of life questionnaire to use pre/post liothyronine trial added
* Reference ranges for TSH updated
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