NHS
Hertfordshire and West Essex
Integrated Care Board

Position Statement on the Prescribing of Liothyronine

This document was produced in response to the consultation process by NHS England on prescription of liothyronine (L-T3) in primary care and APC recommendations.

In support of this proposal, we refer to the NHS England: Liothyronine – advice for prescribers https://www.england.nhs.uk/long-read/liothyronine-advice-for-prescribers/ .

This document is to provide local guidance with an aim to reduce the unnecessary usage and prescription of L-T3 by supporting primary care physicians and teams. Please note that this edict comes from NHS England Items which should not be routinely prescribed in primary care https://www.england.nhs.uk/long-read/items-which-should-not-routinely-be-prescribed-in-primary-care-policy-guidance/. Liothyronine was included in this guidance due to the significant costs associated with liothyronine and the limited evidence to support its routine prescribing in preference to levothyroxine.

Cost Comparison

There is a significant cost difference between thyroid hormone replacement products. Levothyroxine costs between 81p - £18 and liothyronine costs a minimum of £55 for 28 tablets (unlicensed 'specials' may be even more expensive).

If liothyronine must be prescribed, prescribe the product with the lowest acquisition cost unless specific patient factors require another formulation.

Cost Comparison (July 2024) **Formulation and Strength**	**28 tablets (July 2024 Drug Tariff)**
Levothyroxine 12.5 microgram tablets	£18.12
Levothyroxine 25 microgram tablets	£0.91
Levothyroxine 50 microgram tablets	£0.81
Levothyroxine 75 microgram tablets	£3.62
Levothyroxine 100 microgram tablets	£0.81
Liothyronine 5 microgram tablets	£112.76
Liothyronine 10 microgram tablets	£152.44
Liothyronine 20 microgram tablets	£60.43
Liothyronine 5 microgram capsules	£55.00
Liothyronine 10 microgram capsules	£65.00
Liothyronine 20 microgram capsules	£55.00

Position statement on use of L-T3 as monotherapy and with L-T4 in combination therapy

1. Levothyroxine (L-T4) is the standard of care in hypothyroidism, being effective and well-tolerated in the clear majority of patients.

2. There is insufficient evidence to show that combination therapy with L-T4 and L-T3 is superior to L-T4, however in a small proportion of patients with persistent symptoms despite a 6-month trial of L-T4 with results in the normal range, a carefully monitored trial of combination therapy may occasionally be warranted.

3. Combination therapy with L-T3 and L-T4 in **new patients** should ONLY be initiated by a consultant NHS Endocrinologist, after an adequate trial of L-T4 **and** where alterative causes of symptoms have

been excluded. Treatment should only be used in patients who meet the national NHS initiation criteria (see NHS England: Liothyronine – advice for prescribers and/or HWEICB liothyronine shared care protocol for further details).

4. GPs **should not** take on prescribing of L-T3 for patients initiated in private clinics, abroad, or via other self-funded routes.

5. **Where private patients are unable to continue to self-fund**, they should be reviewed by the primary care prescriber to establish if they meet the NHS initiation criteria (see HWEICB liothyronine review algorithm). Where patient **does not** meet these criteria, they should be advised that prescribing under the NHS is not supported, therefore where possible they should stay with their private provider. Where this is not possible, they should be changed to L-T4 monotherapy by the primary care prescriber. Where a patient **does appear** to meet the NHS initiation criteria, they should be referred to a consultant NHS Endocrinologist for review, with consideration given by the consultant NHS Endocrinologist to switching to L-T4 monotherapy (where patients do not meet NHS initiation criteria). Where a switch to L-T4 is recommended, this can take place in primary care using guidance below.

6. **Where a patient was started under NHS services prior to 2021** the patient should be reviewed against the NHS initiation criteria (as for private patients who are unable to continue to self-fund). Where a patient **does not** meet these criteria, they should be advised that prescribing under the NHS is no longer supported and they should be changed to L-T4 monotherapy by the primary care prescriber. Patients who **appear to meet** the NHS initiation criteria should be referred to a consultant NHS Endocrinologist for further assessment.

7. Where a patient is taking a natural thyroid/unlicensed product (& wishes to remain on it) the patient should be advised that prescribing under the NHS **is not supported** as the safety, quality and efficacy of these products cannot be assured, where possible the patient should stay with their private provider.

8. L-T3 **monotherapy** is not recommended in the management of hypothyroidism with the exception of: some cases of thyroid cancer (see below) when the supply will be made from secondary care, or rare cases of L-T4 induced liver injury.

Liothyronine is recommended as part of the management of thyroid cancer in preparation for radioiodine remnant ablation (RRA), radioiodine therapy (I131) or in preparation for a sestamibi parathyroid scan. 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.

Guidance on the management of patients who are currently on either L-T3 monotherapy, or L-T3 and L-T4 combination therapy

1. In existing patients on combination L-T4 and L-T3 therapy, changing to L-T4 should be considered **in all cases**. If there is persistent and verified symptomatic benefit **and** normal TFTs on combination therapy, it may be appropriate to continue combination L-T4 and L-T3 therapy; these patients **must** first be reviewed against **national criteria by a consultant NHS Endocrinologist**. See HWEICB liothyronine review algorithm for further information.

2. Any information about previous L-T4 dosage that achieved a serum TSH within the reference range will be a useful guide to prediction of individual requirement.

3. In patients where it is agreed to switch from combined L-T3 and L-T4 treatment **or** from L-T3 monotherapy to L-T4 monotherapy, the speed of transition should be agreed with the patient. It is possible to directly swap combined L-T3 and L-T4 to L-T4 alone, but some patients prefer a gradual reduction in L-T3 with simultaneous introduction of increasing amounts of L-T4 and this is recommended. See below for suggested conversion:

a. **Suggested equivalence is 10mcg L-T3 = 50mcg L-T4 (adapted from BNF and previous RMOC 2019 guidance)**. 10mcg L-T3 is given by halving the 20mcg L-T3 tablets (halving L-T3 tablets is unlicensed but is routine practice throughout the UK). Alternatively, one can dissolve a tablet in water and take half the volume. Changes should be made according to latest TFTs. Blood tests should be taken prior to morning medication. Assessment of clinical and biochemical thyroid status every six weeks is recommended until stability is reached.

For example, to transition a patient on 50 mcg L-T4 daily and 20 mcg L-T3 bd to 250 mcg L-T4 only:

	L-T4 dose	L-T3 dose
Starting dose (assuming normal TFTs)	50 mcg od	20 mcg bd
Weeks 1-6	150 mcg OD	10 mcg BD
Bloods at week 6-8		
After bloods available, assuming TFTs stable	250 mcg OD	no L-T3
Bloods 6-8 weeks after change		

b. As per the British Thyroid Association (BTA) & Society for Endocrinology (SfE) joint consensus statement, when reducing or stopping liothyronine therapy, 5 mcg of liothyronine should be replaced by about 15 mcg of levothyroxine (a 1:3 ratio). It is recommended to repeat TSH blood testing 6–8 weeks following any change in prescription.

Please note the above are only suggested conversion rates provided for information, any dosage regime undertaken should be tailored to the individual patient and their specific clinical background using the clinical judgement of the clinician.
If further specialist/endocrinologist advice is required, then this can be sought via NHS e-Referral Service (e-RS) advice and guidance.

4. Patients initiated on L-T3 by other specialists should be referred back to these physicians for review with a copy of this guidance. Use for mental health purposes is not supported by the formulary or used by our local mental health services, so these patients should be referred back to mental health service for the specialist to consider alternative treatments.

Secondary care referral for further guidance on the management of patients on L-T3 monotherapy or L-T3 and L-T4 combination therapy

1. Conversion of patients from L-T3 to L-T4 should be trialled initially in primary care using guidance as detailed above.

2. If a specialist opinion is required, then the referral should be to the physician who **originally initiated** L-T3 (wherever possible). This provides continuity, avoids unnecessary duplication and investigation with the aim of reviewing the use of L-T3 and/or rationalising original decision making. Patients initiated on L-T3 in the private sector should be referred back to the original consultant

(wherever possible) with the clear instruction that any further L-T3 prescribing should be done privately and not by primary care. If this is not possible then the patient should be reviewed according to the HWEICB liothyronine review algorithm; where a patient appears to meet the NHS initiation criteria, they should be referred to a consultant NHS Endocrinologist for assessment - **please forward all relevant correspondence.** Patients who do not meet the NHS initiation criteria should be advised that prescribing under the NHS is not supported, therefore where possible they should stay with their private provider. Where this is not possible, they should be changed to L-T4 monotherapy.

3. If patients are referred to secondary care, then the reason for the referral must be made plain to the patient and the referral MUST include details regarding when L-T3 was commenced, by whom, the clinical rationale and the reasons for considering discontinuation after having followed guidance set out in this document.

Prescribing of L-T3

1. Shared care protocol for patients newly commenced on L-T3 therapy (in combination with L-T4) by secondary care providers in Hertfordshire and West Essex was approved in June 2024. Prescribing can transfer to GPs following a successful 6-month trial.

2. If after review of a patient at a secondary care provider in Hertfordshire and West Essex for whom L-T3 was prescribed elsewhere, it is established that continued L-T3 usage is appropriate, then the ongoing prescribing responsibility will remain in primary care (under a shared care arrangement). (The consultant must specifically define the reason why the patient shouldn't undergo a trial titration to levothyroxine and communicate this to the GP).

IMPORTANT - Special circumstances/considerations

1. In patients with a diagnosis of thyroid cancer, where L-T3 is recommended in preparation for radioiodine ablation, radioiodine therapy, diagnostic scanning or further investigation, L-T3 therapy is essential and substitution to L-T4 is completely inappropriate. 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.

2. Patients on L-T3 monotherapy with a history of liver damage caused by L-T4 will need to remain on L-T3.

3. Combination therapy is not recommended in pregnancy – this should therefore form the basis of an initial discussion with regards to conversion to L-T4 monotherapy with the patient if they are of child-bearing potential.

4. Particular caution should be used for patients on L-T3 if they are elderly or of any age with known ischaemic heart disease, myxoedema, cardiovascular disorders or diabetes insipidus & diabetes mellitus.

Supporting Information

1. 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/

2. NHS Liothyronine – advice for prescribers, August 2023. Available online: https://www.england.nhs.uk/long-read/liothyronine-advice-for-prescribers/

3. 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

4. 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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(8) British Thyroid Association (BTA) (2016). Switching your patient from Liothyronine (L-T3) to Levothyroxine (L-T4)? Answering GP's frequently asked questions. [online] doi:https://doi.org/10.1111/cen.12824/abstract;jsessionid=464C3DD53.

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