National shared care protocol for Liothyronine for patients within adult services	
Adapted and adopted for use in Frimley Integrated Care System	
Agreed by NHS Frimley Medicines Optimisation Group	9th May 2023
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Review date as per template document or before if services/ medicines use changes.	

Frimley Health ICS Medicines Board

Shared Care Protocol

Liothyronine for Patients within Adult Services

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Organisation(s): Frimley Health Foundation Trust

20 March 2023, Version 1.

Review date – March 2025

The content of this shared care protocol was correct as of January 2023. As well these protocols, please ensure that summaries of product characteristics (SPCs), British national formulary (BNF) or the Medicines and Healthcare products Regulatory Agency (MHRA) or NICE websites are reviewed for up-to-date information on any medicine.

Specialist responsibilities

- Establish the clinical need for the drug.
- Baseline monitoring and initial prescribing until the patient is established on treatment.
- Provide GP with diagnosis, relevant clinical information and baseline results, treatment to date and treatment plan, duration of treatment before consultant review.
- Ensure that the patient has an adequate supply of medication until GP supply can be arranged.
- Continue to monitor and supervise the patient according to this protocol, while the patient remains on this drug, and agree to review the patient promptly if contacted by the GP.

- Patients will be reviewed in the endocrine clinic as per the Hospital Specialist's instructions – at least on an annual basis.
- Assess the patient and provide diagnosis; ensure that this diagnosis is within scope of this shared care protocol (section 2) and communicated to primary care.
- Use a shared decision making approach; discuss the benefits and risks of the treatment with the patient and/or their carer and provide the appropriate counselling (see section 11) to enable the patient to reach an informed decision. Obtain and document patient consent. Provide an appropriate patient information leaflet.
- Assess for contraindications and cautions (see section 4) and interactions (see section 7).
- Conduct required baseline investigations and initial monitoring (see section 8).
- Initiate and optimise treatment as outlined in section 5. Prescribe the maintenance treatment for at least 4 weeks and until optimised.
- Once treatment is optimised, complete the shared care documentation and send to patient's GP practice detailing the diagnosis, current and ongoing dose, any relevant test results and when the next monitoring is required. Include contact information (section 13).
- Prescribe sufficient medication to enable transfer to primary care, including where there are unforeseen delays to transfer of care.
- Conduct the required reviews and monitoring in section 8 and communicate the results to primary care. After each review, advise primary care whether treatment should be continued, confirm the ongoing dose, and whether the ongoing monitoring outlined in section 9 remains appropriate.
- Provide advice to primary care on the management of adverse effects if required.

Primary care responsibilities

- Respond to the request from the specialist for shared care in writing. It is asked that this be undertaken within 14 days of the request being made, where possible.
- If accepted, prescribe ongoing treatment as detailed in the specialists request and as per section 5, taking into any account potential drug interactions that are added at a later time to initiation in section 7.
- Conduct the required monitoring as outlined in section 9. Communicate any abnormal results to the specialist.
- Manage adverse effects as detailed in section 10 and discuss with specialist team when required.
- Stop treatment as advised by the specialist.
- Ensure hospital is notified if unwilling to undertake prescribing and monitoring when requested

Patient and/or carer responsibilities

- Attend regularly for monitoring and review appointments with primary care and specialist, and keep contact details up to date with both prescribers. Be aware that medicines may be stopped if they do not attend.
- Report adverse effects to their primary care prescriber. Seek immediate medical attention if they develop any symptoms as detailed in section 11.
- Report the use of any over the counter medications to their primary care prescriber and be aware they should discuss the use of amiodarone with their pharmacist before purchasing any OTC medicines.

1. Background

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Summary of advice from RMOC Guidance on Prescribing of Liothyronine June 2019:

NHS England guidance states that prescribers in primary care should not initiate liothyronine (L-T3) for any new patient, and those individuals currently prescribed liothyronine should be reviewed by a consultant NHS Endocrinologist with consideration given to switching to levothyroxine (L-T4) where clinically appropriate. Prescriptions for individuals receiving liothyronine should continue until that review has taken place.

Most patients suffering from hypothyroidism can be treated effectively with levothyroxine alone, but liothyronine is perceived to be an important medicine for a small proportion of patients to maintain health and wellbeing. The prescribing of liothyronine is only supported if initiated by, or considered appropriate, following a review by an NHS consultant endocrinologist.

The withdrawal or adjustment of liothyronine treatment should also only be undertaken by, or with the oversight of, an NHS Consultant Endocrinologist. Where General Practitioners (GPs) are involved in such treatment changes this should be with NHS Consultant Endocrinologist support. This advice applies to both liothyronine monotherapy and combination therapy with levothyroxine.

As noted by the British Thyroid Association (BTA) Executive Committee, ‘clinicians have an ethical responsibility to adhere to the highest professional standards of good medical practice rooted in sound evidence. This includes not prescribing potentially harmful therapies without proven advantages over existing treatments. Also, if a decision is made to embark on a trial of L-T4/L-T3 combination therapy in patients who have unambiguously not benefited from L-T4 then this should be reached following an open and balanced discussion of the uncertain benefits, likely risks of over-replacement and lack of long-term safety data. Such patients should be supervised by accredited Endocrinologists with documentation of agreement after fully informed

and understood discussion of the risks and potential adverse consequences. Many clinicians may not agree that a trial of L-T4/L-T3 combination therapy is warranted in these circumstances and their clinical judgement must be recognised as being valid given the current understanding of the science and evidence of the treatments'.

The RMOC therefore recommends that strict criteria are applied to ensure that liothyronine is only prescribed in the situations where alternative treatments have been found to be inadequate. In such circumstances, an ongoing shared care arrangement may be appropriate if agreed by local commissioners. If a patient is initiated on treatment, prescribing responsibility should remain with the hospital consultant for at least 3 months.

2. Indications

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- Hypothyroidism in adults receiving liothyronine monotherapy
  - Liothyronine is not recommended in hypothyroidism.
    Prescribing would be in exceptional circumstances only, such as clearly distinguishable specific levothyroxine medication intolerance including extremely rare cases of levothyroxine induced liver injury or potentially for patients who do not effectively metabolise levothyroxine to liothyronine, if a specialist assessing the patient according to these guidelines agrees.
- Hypothyroidism in adults receiving liothyronine in combination with levothyroxine
  - Combination levothyroxine / liothyronine should not be used routinely in the management of hypothyroidism as there is insufficient population based clinical evidence to show that combination therapy is superior to levothyroxine monotherapy.
    As part of the overall holistic management of patients with hypothyroidism, NHS Consultant Endocrinologists may start a trial of combination levothyroxine and liothyronine in circumstances where all other treatment options have been exhausted.
    1. Where symptoms of hypothyroidism persist despite optimal dosage with levothyroxine (TSH 0.4-1.5mU/L)
    2. Where alternative causes of symptoms have been excluded, listed below.

Some possible causes of persistent symptoms in euthyroid patients:

Endocrine / autoimmune	Diabetes mellitus Adrenal insufficiency Hypopituitarism Coeliac disease Pernicious anaemia
Haematological	Anaemia Multiple myeloma
End organ damage	Chronic liver disease Chronic kidney disease Congestive cardiac failure
Nutritional	Deficiency of any of the following: Vitamin B12, folate, vitamin D, iron
Metabolic	Obesity Hypercalcaemia Electrolyte imbalance
Drugs	Beta-blockers Statins Opiates

Lifestyle	Stressful life events Poor sleep pattern Work-related exhaustion Alcohol excess
Other	Obstructive sleep apnoea Viral and post-viral syndromes Chronic fatigue syndrome Carbon monoxide poisoning Depression and anxiety Polymyalgia rheumatic Fibromyalgia

3. Exclusions *(criteria where patients should remain under specialist care)* Back to top

1. Patients with thyroid cancer who need liothyronine as part of their investigation and treatment will remain under the specialist care. RED on the traffic light system.

2. Women who are planning pregnancy who are taking liothyronine should remain under specialist care as it is not recommended in pregnancy. RED on the traffic light system.

3. In rare cases where liothyronine is used for resistant depression, therapy should be supervised by a consultant psychiatrist. This is off license and RED on the traffic light system.

4. Use in the following indications which are also RED on the traffic light system: myxoedema coma, thyrotoxicosis and thyroid and parathyroid cancer.

4. Contraindications and cautions Back to top

This information does not replace the Summary of Product Characteristics (SPC) and should be read in conjunction with it. Please see BNF & SPC for comprehensive information.

Contraindications:

- Known hypersensitivity to the drug or any of its excipients
- Thyrotoxicosis
- Cardiac arrhythmias
- Angina

Cautions:

- Adrenocortical insufficiency: in severe and prolonged hypothyroidism, adrenocortical activity may be decreased. When thyroid replacement is started, metabolism increases more than adrenocortical activity. This can lead to adrenocortical insufficiency requiring supplemental adrenocortical steroids.
- Ischaemic heart disease: any new presentation or significant worsening of existing ischaemic heart disease should be discussed with the specialist endocrinology team.

5. Dose Back to top

Adults: starting dose of 10 to 20 micrograms daily in 2-3 divided doses, increased to 60 micrograms daily in 2-3 divided doses. Doses should be increased gradually.

Elderly: 5 micrograms daily.

6. Pharmaceutical aspects

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Route of administration:	• Oral
Formulation:	• Tablets and capsules. NB: 10microgram capsules cost effective compared to tablets. • Strengths 5, 10 and 20 micrograms
Administration details:	Liothyronine Sodium Capsules/ Tablets are taken by mouth. They should be swallowed with a glass of water.
Other important information:	When used in combination with levothyroxine: When liothyronine is commenced a reduction in levothyroxine dose will be required. Specialists should individualise approach to dose changes, however typically, for every 10microgram of liothyronine, the levothyroxine dose should be reduced by 50micrograms

7. Significant medicine interactions

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The following list is not exhaustive. Please see BNF or SPC for comprehensive information and recommended management.

- Anticonvulsants: Phenytoin levels may be increased by liothyronine. Anticonvulsants, such as carbamazepine and phenytoin enhance the metabolism of thyroid hormones and may displace thyroid hormones from plasma proteins. Initiation or discontinuation of anticonvulsant therapy may alter liothyronine dose requirements.
- Requirements for thyroid hormones in hypothyroidism may be increased by oestrogens.
- Digoxin: liothyronine is predicted to affect the concentration of digoxin. Manufacturer advises monitor and adjust dose.
- Liothyronine may result in an increase in insulin or anti-diabetic drug requirements.

8. Baseline investigations, initial monitoring, and ongoing monitoring to be undertaken by specialist

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Monitoring at baseline and during initiation is the responsibility of the specialist; only once the patient is optimised on the chosen medication with no anticipated further changes expected in immediate future will prescribing and monitoring be transferred to primary care.

- Initial biochemical monitoring will be undertaken by the specialist until a stable regimen is established. Shared care will only be requested once stable regimen established.
- Monitoring is by TSH levels measured from blood tests taken *prior to the morning medication.*
- Initially and following a dose change a repeat test will be required at 6-8 weeks following this change. After dose stabilisation, monitoring should only be required annually unless there is a change in symptoms, comorbidities or concurrent medication that may warrant the checking of TSH levels.
- The aim of the treatment is to maintain TSH (and where appropriate T3 and T4) within the normal range.
- Secondary care will undertake an annual review with the patient to ensure treatment is still indicated.

9. Ongoing monitoring requirements to be undertaken by primary care

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See section 10 for further guidance on management of adverse effects/responding to monitoring results.

TSH Level (mU/L) (annually, unless recent dose change, see section 8)	Action for GP
>5mU/L	Increase liothyronine by 10 microgram if on *monotherapy.* Increase levothyroxine by 25 microgram if on *combination therapy.*
0.4-5.0mU/L	No change required, continue current dose if otherwise appropriate.
<0.4mU/L	Seek specialist advice, likely resume at lower dose.

If monitoring results are forwarded to the specialist team, please include clear clinical information on the reason for sending, to inform action to be taken by secondary care.

10. Adverse effects and other management

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Any serious adverse reactions should be reported to the MHRA via the Yellow Card scheme. Visit www.mhra.gov.uk/yellowcard

For information on incidence of ADRs see relevant summaries of product characteristics

Most serious toxicity is seen with long-term use and may therefore present first to GPs.
The risks of over-treatment with thyroid hormones include atrial fibrillation, osteoporosis and bone fractures, and the risks of under treatment are also significant.

If levels are outside of the normal laboratory reference range specialist advice should be sought.

Result	Action for primary care
Angina, arrhythmia	Stop Liothyronine, check TSH GP then refer to specialist
Other symptoms of excessive dose: Palpitations, restlessness, tremor, diarrhoea, headache, muscle cramps	Continue liothyronine, check TSH GP, refer to specialist if symptoms are persistent or blood tests abnormal

11. Advice to patients and carers

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The specialist will counsel the patient about the benefits and risks of treatment and will provide the patient with any relevant information and advice, including patient information leaflets on individual medicines.

To get the most out of your treatment it's important that you work together with your specialist. You must follow these guidelines to ensure your own safety, health and wellbeing.

- You must make sure that you understand about your treatment
- If you do not understand, ask for more information from the person prescribing the medicine
- Read the Patient Information Leaflet included with your medication. It will provide you with information about your medication
- You must raise any concerns about your treatment with the person prescribing the medicine
- Talk to the specialist and come to an agreement of how the treatment should be provided to you
- Give permission to have aspects of your care communicated to healthcare providers
- You must attend all appointments
- You must keep a written list of all of the medicines you are taking
- You must keep lists of any additional vitamins, minerals, or other dietary supplements
- You must bring these lists with you each time you visit a healthcare provider or are admitted to a hospital

- You must carry these lists on you in case of an emergency
- You must not let anyone else take your medication.

It is your responsibility to follow these guidelines. The guidelines are here for your safety, health and wellbeing.

If you would like more information on your rights, roles and responsibilities in your healthcare please ask a NHS professional for information on the NHS constitution or visit:
www.gov.uk/government/publications/the-nhs-constitution-for-england

12. Pregnancy and breast feeding

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Pregnancy:

- Safety during pregnancy is not known. The risk of foetal congenital abnormalities should be weighed against the risk to the foetus of untreated maternal hypothyroidism.

Breastfeeding:

- An increase in monitoring of thyroid function tests may be required, discuss with specialist endocrinology team.

13. Specialist contact information

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Frimley Park Hospital

Name: Wendy Johnson

Role and specialty: Endocrinology Secretary

Daytime telephone number: 0300 613 4009

Email address: fhft.endocrine.diabetessecretariesfph@nhs.net

Alternative contact: Advice & Guidance Online Platform

Wexham Park Hospital

Name: Hamida Uwineza

Role and specialty: Endocrinology Secretary

Daytime telephone number: 0300 613 4201

Email address: fhft.genmedblueteamfph@nhs.net

Alternative contact: Advice & Guidance Online Platform

14. Additional information

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Where patient care is transferred from one specialist service or GP practice to another, a new shared care agreement must be completed. Ensure that the specialist is informed in writing of any changes to the patient's GP or their contact details.

15. References

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- Specialist Pharmacy Service. Regional Medicines Optimisation Committee: Guidance – Prescribing of Liothyronine, June 2019. Accessed via: https://www.sps.nhs.uk/wp-content/uploads/2019/07/RMOC-Liothyronine-guidance-V2.6-final-1.pdf
- Advanz Pharma: Summary of Product Characteristics. Liothyronine Sodium BP 20 micrograms Tablets. Accessed via https://emc.medicines.org.uk/medicine /
- Joint Formulary Committee. British National Formulary (online) London: BMJ Group and Pharmaceutical Press
- Wiersinga W, M, Duntas L, Fadeyev V, Nygaard B, Vanderpump M, P, J, 2012 ETA Guidelines: The Use of L-T4 + L-T3 in the Treatment of Hypothyroidism. Eur Thyroid J 2012;1:55-71
- Okosieme, Gilbert J, Abraham P, et al. Management of primary hypothyroidism: statement by the British Thyroid Association Executive Committee. Clin Endocrinol (Oxf). 2016;84):799-808

16. Other relevant national guidance

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- Shared Care for Medicines Guidance – A Standard Approach (RMOC). Available from https://www.sps.nhs.uk/articles/rmoc-shared-care-guidance/
- NHSE guidance – Responsibility for prescribing between primary & secondary/tertiary care. Available from https://www.england.nhs.uk/publication/responsibility-for-prescribing-between-primary-and-secondary-tertiary-care/
- General Medical Council. Good practice in prescribing and managing medicines and devices. Shared care. Available from https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/good-practice-in-prescribing-and-managing-medicines-and-devices/shared-care
- NICE NG197: Shared decision making. Last updated June 2021. https://www.nice.org.uk/guidance/ng197/

17. Local arrangements for referral

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Define the referral procedure from hospital to primary care prescriber & route of return should the patient's condition change.

Referral to secondary care:
Referral is via the Endocrinology Secretaries who can be contacted via email or phone. Alternatively, the Advice & Guidance Online Platform can be utilised.

APC board date:
Last updated:

Appendix 1: Shared Care Request letter (Specialist to Primary Care Prescriber)

Dear *[insert Primary Care Prescriber's name]*

Patient name:*[insert patient's name]*
Date of birth: *[insert date of birth]*
NHS Number*: [insert NHS Number]*
Diagnosis: *[insert diagnosis]*

As per the agreed *[insert APC name]*shared care protocol for *[insert medicine name]* for the treatment of *[insert indication],* this patient is now suitable for prescribing to move to primary care.

The patient fulfils criteria for shared care and I am therefore requesting your agreement to participate in shared care. Where baseline investigations are set out in the shared care protocol, I have carried these out.

I can confirm that the following has happened with regard to this treatment:

	Specialist to complete
The patient has been initiated on this therapy and has been on an optimised dose for the following period of time:	
Baseline investigation and monitoring as set out in the shared care documents have been completed and were satisfactory	*Yes / No*
The condition being treated has a predictable course of progression and the patient can be suitably maintained by primary care	*Yes / No*
The risks and benefits of treatment have been explained to the patient	*Yes / No*
The roles of the specialist/specialist team/ Primary Care Prescriber / Patient and pharmacist have been explained and agreed	*Yes / No*
The patient has agreed to this shared care arrangement, understands the need for ongoing monitoring, and has agreed to attend all necessary appointments	*Yes / No*
I have enclosed a copy of the shared care protocol which covers this treatment/the SCP can be found here (insert electronic/ web link)	*Yes / No*
I have included with the letter copies of the information the patient has received	*Yes / No*
I have provided the patient with sufficient medication to last until	
I have arranged a follow up with this patient in the following timescale	

Treatment was started on *[insert date started]* and the current dose is *[insert dose and frequency]*.

If you are in agreement, please undertake monitoring and treatment from *[insert date]* NB: date must be at least 1 month from initiation of treatment.

The next blood monitoring is due on *[insert date]* and should be continued in line with the shared care guideline.

Please respond to this request for shared care, in writing, within 14 days of the request being made where possible.

Appendix 2: Shared Care Agreement Letter (Primary Care Prescriber to Specialist)

Primary Care Prescriber Response

Dear *[insert Doctor's name]*

Patient *[insert Patient's name]*

NHS Number *[insert NHS Number]*

Identifier *[insert patient's date of birth and/oraddress]*

Thank you for your request for me to accept prescribing responsibility for this patient under a shared care agreement and to provide the following treatment

Medicine	Route	Dose & frequency

I can confirm that I am willing to take on this responsibility from *[insert date]* and will complete the monitoring as set out in the shared care protocol for this medicine/condition.

Primary Care Prescriber signature: _____ Date: _____

Primary Care Prescriber address/practice stamp

Appendix 3: Shared Care Refusal Letter (Primary Care Prescriber to Specialist)

Re*:*
Patient *[insert Patient's name]*

NHS Number *[insert NHS Number]*

Identifier *[insert patient's date of birth and/oraddress]*

Thank you for your request for me to accept prescribing responsibility for this patient.

In the interest of patient safety NHS *Frimley***,** in conjunction with local acute trusts have classified *[insert medicine name]*as a Shared Care drug, and requires a number of conditions to be met before transfer can be made to primary care.

I regret to inform you that in this instance I am unable to take on responsibility due to the following:

		Tick which apply
1.	**The prescriber does not feel clinically confident in managing this individual patient's condition, and there is a sound clinical basis for refusing to accept shared care** As the patients primary care prescriber I do not feel clinically confident to manage this patient's condition because *[insert reason]*. I have consulted with other primary care prescribers in my practice who support my decision. This is not an issue which would be resolved through adequate and appropriate training of prescribers within my practice. **I have discussed my decision with the patient and request that prescribing for this individual remain with you as the specialist, due to the sound clinical basis given above.**	
2.	**The medicine or condition does not fall within the criteria defining suitability for inclusion in a shared care arrangement** As the medicine requested to be prescribed is not included on the national list of shared care drugs as identified by RMOC or is not a locally agreed shared care medicine I am unable to accept clinical responsibility for prescribing this medication at this time. **Until this medicine is identified either nationally or locally as requiring shared care the responsibility for providing this patient with their medication remains with you**	
3.	**A minimum duration of supply by the initiating clinician** As the patient has not had the minimum supply of medication to be provided by the initiating specialist I am unable to take clinical responsibility for prescribing this medication at this time. Therefore can you please contact the patient as soon as possible in order to provide them with the medication that you have recommended. ***Until the patient has had the appropriate length of supply the responsibility for providing the patient with their medication remains with you.***	

4.	**Initiation and optimisation by the initiating specialist** As the patient has not been optimised on this medication I am unable to take clinical responsibility for prescribing this medication at this time. Therefore can you please contact the patient as soon as possible in order to provide them with the medication that you have recommended. ***Until the patient is optimised on this medication the responsibility for providing the patient with their medication remains with you.***	
5.	**Shared Care Protocol not received** As legal responsibility for clinical care lies with the clinician who signs the prescription, I need to ensure that I am in possession of sufficient clinical information for me to be confident to prescribe this treatment for my patient and it is clear where each of our responsibilities lie to ensure the patient is safely managed***.*** For this reason I am unable to take clinical responsibility for prescribing this medication at this time, therefore would you please contact the patient as soon as possible in order to provide them with the medication that you have recommended. ***Until I receive the appropriate SCP, responsibility for providing the patient with their medication remains with you.***	
6.	**Other (Primary Care Prescriber to complete if there are other reasons why shared care cannot be accepted)**	

I would be willing to consider prescribing for this patient once the above criteria have been met for this treatment.

NHS England 'Responsibility for prescribing between Primary & Secondary/Tertiary care' guidance (2018) states that "when decisions are made to transfer clinical and prescribing responsibility for a patient between care settings, it is of the utmost importance that the GP feels clinically competent to prescribe the necessary medicines. It is therefore essential that a transfer involving medicines with which GPs would not normally be familiar should not take place without full local agreement, and the dissemination of sufficient, up-to-date information to individual GPs." In this case we would also see the term GP being interchangeable with the term Primary Care Prescriber.

Please do not hesitate to contact me if you wish to discuss any aspect of my letter in more detail and I hope to receive more information regarding this shared care agreement as soon as possible

Yours sincerely

Primary Care Prescriber signature: _____ **Date:** _____

Primary Care Prescriber address/practice stamp