## Lithium for patients within adult services

|  |  |  |  |
| --- | --- | --- | --- |
| Version: | HNY V1.0 | Replaces version: | RDTC draft 3 |
| Clinical content last reviewed: | December 2023 | Next review date: | December 2025 |

|  |  |  |
| --- | --- | --- |
| **Version** | **Date published** | **Changes since previous version** |
| RDTC v1.0 | 22/03/2024 | Hyperlinks and references updated to current versions.  Updated information on frequency of monitoring to align with NICE NG222.  Additional cautions added: drugs affecting electrolyte balance, diabetes insipidus, congenital long QT syndrome or risk factors for QT prolongation, bariatric surgery, and people who refuse monitoring or are at high risk of overdose.  Additional interactions added: effervescent analgesics, carbonic anhydrase inhibitors, dapagliflozin, empagliflozin, methyldopa.  Additional wording throughout to reinforce safety precautions. |
| HNY v1.0 | August 2025 | HNY logos added  Section 1: Prescribing and monitoring responsibility of patients with a target lithium level >1 mmol/L must not transfer to primary care  Section 4: Transfer to primary care should happen after at least 12 weeks when dose has been optimised and test results are stable for at least 12 weeks.  Section 4: To transfer from the specialist to primary care, the patient must be a) stable, i.e. the condition/indication is 'managed' appropriately, monitoring is within normal parameters, and b) the patient remains on the same dose that the specialist recommended.  Section 5: Added - Prescribing and dispensing of lithium should be by brand name and formulation to avoid inadvertent switching**.**  Ongoing monitoring: Added **-** If the specialist team becomes aware that the patient does not attend for their regular monitoring:  First non-attendance – inform primary care of the actions being taken to get the patient in for their monitoring  Second non–attendance – advise primary care to suspend the repeat prescription for lithium  At initiation of shared care, communication to primary care should include current and ongoing dose, and also that the brand and form of lithium should be specified any relevant test results, and date the next monitoring is required (see [Appendix 1](#Appendix_1) for sample letter from specialist to primary care prescriber and [Appendix 2](#Appendix_2) for sample shared care agreement letter from primary care prescriber to specialist)  The specialist will retain the responsibility for monitoring the patient’s ongoing response to treatment and advise if a dose change or treatment cessation is appropriate. This should usually be undertaken annually.  When a patient is reviewed, advise primary care whether treatment should be continued, confirm the ongoing dose, and whether the ongoing monitoring outlined in section 6 remains appropriate.  Section 6: Changed frequency section to be in line with NENC lithium shared care guideline:  At least every 3 months for the first year. After a year, monitoring of stable patients can be extended to 6-monthly, as advised by the specialist team - this is not recommended in the following patients for whom 3-monthly monitoring should be maintained or re-established:  • Pregnant  • Aged 65 years or older  • People taking interacting medicines  • People at risk of impaired renal\* or thyroid function, raised calcium levels or other complications.  • People with poor symptom control  • People with poor adherence  • People with most recent 12-hour post dose plasma lithium level at 0.8mmol/litre or higher.  • People with significant change in sodium or fluid intake  Consider additional monitoring whenever there is a change in the patient's circumstance e.g. intercurrent illness.  \*declining eGFR or urea and creatinine elevated.  Section 6: Added - If the patient does not attend for their regular monitoring, advise the specialist so they can advise on actions to take  Section 8: expanded sentence around pregnancy and made reference to section 12.  Section 9: changed wording from Must not to should not.  Section 10: Added A LiSERS scale has been included in [Appendix 3](#Appendix_3) for information  Section 11: The NHS lithium health monitoring App can be used as an alternative to the purple lithium monitoring book; however, this is only available on Android devices and is not available via the Apple APP store  Section 12: Patients stabilised on lithium who are planning pregnancy should be referred to the local perinatal psychiatry team for pre-conception advice added.  Section 13: Contact information updated to Details for contacting specialist must be included on the clinic letter.  Section 16: Hyperlink to Shared Care for Medicines Guidance updated  Added Appendix 1,2 and 3 |

**Local review and adoption**

|  |  |
| --- | --- |
| **Local approval** | **Date** |
| Local content added | July 2025 |
| Approved for use by HNY ICB | 6th August 2025 |

Clinical content has been reviewed and updated by the RDTC on the date indicated above. Every effort is made to keep the content up to date. These templates are provided to the North West and North East and Yorkshire ICBs for localisation and approval through standard ICB processes. The most recent version is available on the RDTC website at <https://rdtc.nhs.uk/prescribing-support-document/shared-care-protocol-lithium-in-adults/>.

This document is intended for use by NHS healthcare professionals and cannot be used for commercial or marketing purposes.

**Shared Care Protocol**

## Lithium for patients within adult services

|  |  |
| --- | --- |
| Background | Lithium is licensed for the treatment and prevention of mania, bipolar disorder, recurrent depression (unipolar) and aggressive/self-mutilating behaviour. Not all patients respond to lithium, so the benefits and risks should be regularly and individually assessed. Lithium treatment should not be stopped suddenly, as this can cause relapse.  Lithium has a narrow therapeutic window of between 0.4 and 1.0 mmol/L for most indications, although a narrower range is usually specified for an individual patient. Higher target plasma levels (0.8–1 mmol/L) may be recommended for acute episodes of mania, for patients who have previously relapsed or when subthreshold symptoms of illness are associated with functional impairment. **The specialist service will determine the target range for each patient and advise the primary care prescriber accordingly. However, if the target plasma level is above 1mmol/l, prescribing and monitoring should remain with the specialist.**  Lithium has numerous mild side effects but can be toxic if the dose is too high. Toxicity usually occurs with levels above 1.5 mmol/L but can emerge at lower levels in susceptible patients such as the elderly or those with renal impairment. Toxicity can also occur when levels are in the ‘therapeutic range’. Excluding excessive ingestion, toxicity most commonly arises due to a reduced elimination of lithium. Elimination of lithium is almost exclusively renal and is sensitive to the handling of sodium by the kidneys. Lithium toxicity can itself impair renal function, so rapid escalations in plasma lithium levels may occur. With long-term use, lithium can have adverse effects on the kidneys, the thyroid, and the parathyroid glands.  **Lithium should always be prescribed by brand and form**; tablets and liquids are not interchangeable. Extra care must be taken when prescribing liquid forms, with clarity over the name and strength of the preparation. Patients should be involved in treatment decisions and understand the importance of lithium monitoring. |
| Licensed and agreed off-label indications | Indications:   * Treatment and prophylaxis of mania * Treatment and prophylaxis of bipolar disorder * Treatment and prophylaxis of recurrent depression. NB: national guidance does not include recommendations on using lithium as a sole agent to prevent recurrence, see [NICE NG222: Depression in adults: recognition and management](https://www.nice.org.uk/guidance/ng222) * Treatment and prophylaxis of aggressive or self-harming behaviour * Augmentation of antidepressantsǂ [See NICE NG222: Depression in adults: recognition and management](https://www.nice.org.uk/guidance/ng222)   ǂ Off-label indications. (Please note licensed indications vary by manufacturer).  This shared care protocol applies to adults aged 18 and over. |
| Locally agreed indications | As per indications included in Section 2 above. |
| Initiation and ongoing dose regime | Transfer of monitoring and prescribing to primary care is normally after at least 12 weeks, and when the patient’s dose has been optimised and with satisfactory investigation results for at least 12 weeks. To transfer from the specialist to primary care, the patient must be a) stable, i.e. the condition/indication is 'managed' appropriately, monitoring is within normal parameters, and b) the patient remains on the same dose that the specialist recommended.  The duration of treatment & frequency of review will be determined by the specialist, based on clinical response and tolerability.  All dose or formulation adjustments will be the responsibility of the specialist unless directions have been discussed and agreed with the primary care clinician.  Termination of treatment will be the responsibility of the specialist.  **Initial stabilisation:**  Lithium carbonate  Typically from 400 mg – 1.5 g daily (depending on indication and brand), then adjusted according to patient response and 12-hour post dose plasma levels.  In some scenarios, such as acute mania, a higher starting dose may be preferable. The BNF outlines the typical starting doses by indication and brand.  Lithium carbonate tablets should be prescribed unless there is a specific problem with swallowing difficulties.  **The initial period must be prescribed by the initiating specialist.**  Lithium citrate  Typically 509 mg or 520 mg twice daily (depending on brand), in the morning and evening, then adjusted according to patient response and 12-hour post dose plasma levels.  Liquid formulations contain lithium citrate and doses are not equivalent to lithium carbonate; bioavailability is significantly different. If a switch in formulation is considered, discuss with the specialist team.  Extra care must be taken when prescribing lithium in liquid form, as some offer different strengths under the same brand names, and some brands are used for the liquid and tablet forms.  **The initial period must be prescribed by the initiating specialist.**  **Maintenance dose (following initial stabilisation):**  Individualised, to achieve plasma lithium levels in the range specified for the patient. Doses may initially be divided throughout the day but once-daily administration is preferred when plasma lithium concentration is stabilised in the target range (specified by specialist team).  **The initial maintenance dose must be prescribed by the initiating specialist.**  **Conditions requiring dose adjustment:**  Lower doses may be required in older or physically frail/low body weight patients, in mild to moderate renal impairment and electrolyte imbalance. Dose adjustments may also be required in patients prescribed interacting medicines (see [section 9](#nine_interactions)) and patients who have undergone bariatric surgery.  **Stopping lithium treatment**  The decision to stop treatment will be the responsibility of the specialist. Clinicians, patients, and carers should be aware that abrupt discontinuation of lithium increases the risk of relapse. If lithium is to be stopped, the dose should gradually be reduced over a period of at least four weeks but preferably over a period of up to three months. |
| Baseline investigations, initial monitoring, and ongoing monitoring to be undertaken by specialist | **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 the immediate future will prescribing and monitoring be transferred to primary care.  Recent and relevant investigation results must be documented in the corresponding letter from specialist.  **Baseline investigations (all indications):**   * Urea and electrolytes (U&Es), including estimated glomerular filtration rate (eGFR) * Calcium * Thyroid function tests (TFTs) * Electrocardiogram (ECG) recommended for patients with existing cardiovascular disease (CVD) or risk factors * Full blood count (FBC) * Bodyweight or body mass index (BMI) * Exclude pregnancy   **Additional baseline investigations (bipolar disorder):**   * Cardiovascular status including pulse and blood pressure (BP) * Metabolic status including fasting blood glucose, glycosylated haemoglobin (HbA1c) and blood lipid profile * Liver function tests (LFTs)   **Initial monitoring:**  12-hour post dose plasma lithium levels one week after initiation and one week after any change in dose or formulation; lithium levels take 4-7 days to reach steady state concentrations.  Typically, this means levels will be monitored weekly until the desired level and clinical effect is achieved. Following a dose, levels fluctuate during absorption/distribution, so measurements are made 12 hours post-dose for monitoring purposes.  **Ongoing monitoring:**  Review patient at least every 12 months to assess their mental health, effectiveness of treatment and the ongoing need for lithium. If the specialist team becomes aware that the patient does not attend for their regular monitoring:  First non-attendance – inform primary care of the actions being taken to get the patient in for their monitoring  Second non–attendance – advise primary care to suspend the repeat prescription for lithium  **Prescribing and dispensing of lithium should be by brand name and formulation to avoid inadvertent switching.**  At initiation of shared care, communication to primary care should include current and ongoing dose, and also that the brand and form of lithium should be specified any relevant test results, and date the next monitoring is required (see [Appendix 1](#Appendix_1) for sample letter from specialist to primary care prescriber and [Appendix 2](#Appendix_2) for sample shared care agreement letter from primary care prescriber to specialist).  The specialist will retain the responsibility for monitoring the patient’s ongoing response to treatment and advise if a dose change or treatment cessation is appropriate. This should usually be undertaken annually.  When a patient is reviewed, advise primary care whether treatment should be continued, confirm the ongoing dose, and whether the ongoing monitoring outlined in [section 6](#six_monitoring) remains appropriate. |

## Ongoing monitoring requirements to be undertaken by primary care

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.

| **Monitoring** | **Frequency** |
| --- | --- |
| **Plasma lithium level taken 10-14 hours post-dose. NB: samples should be taken as close to 12-hours post-dose as possible.**   * Record results in the patient’s record as well as patient-held purple lithium pack, or other suitable recording mechanism. * It is advisable to document the actual time interval between the last dose and the blood sample | **At least every 3 months for the first year. After a year, monitoring of stable patients can be extended to 6-monthly, as advised by the specialist team - this is not recommended in the following patients for whom 3-monthly monitoring should be maintained or re-established:**   * Pregnant * Aged 65 years or older * People taking interacting medicines * People at risk of impaired renal\* or thyroid function, raised calcium levels or other complications. * People with poor symptom control * People with poor adherence * People with most recent 12-hour post dose plasma lithium level at 0.8mmol/litre or higher. * People with significant change in sodium or fluid intake   Consider additional monitoring whenever there is a change in the patient's circumstance e.g. intercurrent illness.  \*declining eGFR or urea and creatinine elevated.  If the patient does not attend for their regular monitoring, advise the specialist so they can advise on actions to take |
| **U&Es, including eGFR**  **Calcium**  **TFTs**  **Bodyweight or BMI.** | **Every 6 months.**  More frequent monitoring( particularly renal function) may be advised by the specialist team in some higher risk patients – see list above.  If the patient does not attend for their regular monitoring, advise the specialist so they can advise on actions to take |
| **Signs of toxicity**  Enquire about and document signs and symptoms which might indicate toxicity, e.g. paraesthesia, ataxia, tremor, cognitive impairment. | **At every consultation with the prescriber regarding lithium treatment** |
| **Additional monitoring: bipolar disorder**   * Diet, nutritional status and level of physical activity. * Cardiovascular status including pulse and BP. * Metabolic status including fasting blood glucose, HbA1c and blood lipid profile. * LFTs. | **Annually**  As part of physical health check recommended in NICE [CG185 Bipolar disorder: assessment and management](https://www.nice.org.uk/guidance/cg185). |

## Pharmaceutical aspects

|  |  |
| --- | --- |
| Route of administration: | Oral |
| Formulation: | Lithium is available as lithium carbonate (tablet formulations) and lithium citrate (liquid formulations). Preparations vary widely in bioavailability. The patient should be maintained on the same brand and formulation of lithium; changing the preparation requires the same precautions as initiation of treatment. If a switch in brand or formulation is considered, refer to the specialist team. Lithium tablets and liquids are not interchangeable.  **Lithium Carbonate:**   * Priadel® 200 mg and 400 mg prolonged-release tablets * Camcolit® 400 mg controlled release tablets * Liskonum® 450 mg controlled release tablets * Lithium carbonate Essential Pharma: 250 mg film-coated tablets (immediate release)   **Lithium Citrate:**   * Priadel® Liquid: 520 mg/5 mL sugar-free, pineapple flavoured syrup * Li-Liquid®: 509 mg/5 mL and 1,018 mg/5 mL cherry flavoured syrup   Extra care must be taken when prescribing lithium in liquid form, as some offer different strengths (mg/ml) under the same brand name (Li-liquid®) and some brand names (Priadel®) are used for the liquid and tablet forms.  **Always prescribe lithium by brand name and form. Switching preparation (either between brands of the same form or changing between tablets and liquid) requires additional monitoring to ensure that the 12-hour post dose plasma lithium level remains in the desired range (**[**see section 6**](#six_monitoring)**).**  **Particular care should be taken if prescribing liquid preparations. Lack of clarity may lead to the patient receiving a sub-therapeutic or toxic dose.** |
| Administration details: | Consistency is paramount in lithium treatment and monitoring. Doses should be taken regularly, at the same time every day. Lithium carbonate tablets should not be crushed or chewed.  Priadel® 200mg and 400mg tablets have score lines and can be divided accurately to provide dosage requirements as small as 100mg within product license.  Liskonum® 450mg tablets are licensed to be halved for the purposes of dose adjustment.  Other brands may be scored to facilitate breaking for ease of swallowing, but not to divide into equal doses. Breaking these tablets is not expected to alter their release properties but the accuracy of the division is not established. |
| Other important information: | If a dose is missed, then the next scheduled dose should be taken as usual if remembered within 6 hours; a double dose should not be taken to make up for a missed dose. For a given total daily dose, 12-hour post dose plasma lithium levels will differ for once versus twice daily dosing schedules. The schedule should be determined by the specialist and not altered without their advice. |

|  |  |
| --- | --- |
| Cautions and contraindications | This information does not replace the Summary of Product Characteristics (SPC), and should be read in conjunction with it. Please see [BNF](https://bnf.nice.org.uk/drugs/lithium-carbonate/) & [SPC](https://www.medicines.org.uk/emc/search?q=lithium) for comprehensive information.  **Contraindications:**   * Hypersensitivity to lithium or any of the excipients * Addison’s disease * Cardiac disease associated with rhythm disorder * Cardiac insufficiency * Family or personal history of Brugada syndrome * Patients with abnormal sodium levels, including dehydrated patients or those on low sodium diets * Untreated hypothyroidism * Severe renal impairment * Pregnancy (especially the first trimester), **unless considered essential following discussion with specialist (see section 12)** * Breastfeeding   **Cautions:**   * Mild to moderate renal impairment * Use in elderly patients – dose reduction required * Adequate and stable sodium and fluid intake should be maintained. This may be of special importance in hot weather, or during infectious diseases, including influenza, diarrhoea and/or vomiting, profuse sweating or urinary infections, when dose reduction may be required * Concomitant use of drugs likely to upset electrolyte balance e.g. diuretics * Diabetes insipidus * Risk of seizures may be increased if co-administered with drugs that lower the seizure threshold, or in patients with epilepsy, or those receiving electroconvulsive therapy * Cardiac disease, including congenital long QT syndrome or risk factors for QT prolongation * Bariatric surgery * People who refuse regular blood tests * People who are at high risk of taking an overdose, either intentionally or unintentionally * May exacerbate psoriasis * Surgery: discontinue 24 hours prior to major surgery and re-commence post-operatively once kidney function and fluid-electrolyte balance is normalised. Discontinuation is not required prior to minor surgery, providing fluids and electrolytes are carefully monitored |
| Significant drug interactions | The following list is not exhaustive. Please see [BNF](https://bnf.nice.org.uk/interactions/lithium/) & [SPC](https://www.medicines.org.uk/emc/search?q=lithium) for comprehensive information and recommended management.  **The following medicines should not be prescribed without consultation with specialists:**   * **Medicines that may increase plasma lithium concentrations** (by reducing renal elimination) and so risk toxicity: * NSAIDs (including cyclo-oxygenase 2 inhibitors). If NSAID use is unavoidable, a dose reduction of lithium may be required and levels should be monitored more frequently; discuss with specialist team. ‘As required’ use of NSAIDs should be avoided since it may cause fluctuations in lithium levels and makes monitoring levels challenging. * Diuretics, particularly thiazide diuretics * Angiotensin converting enzyme (ACE) inhibitors and angiotensin II receptor antagonists * Other drugs which alter electrolyte balance with the potential to alter lithium clearance e.g. steroids. * Certain antibiotics including metronidazole and tetracyclines * **Medicines that may decrease plasma lithium concentrations** (by increasing renal elimination) and so risk loss of efficacy: * Theophylline * Products which contain sodium bicarbonate e.g. antacids, effervescent analgesics * Carbonic anhydrase inhibitors (e.g. acetazolamide) * Dapagliflozin, empagliflozin * **Medicines that may increase risk of neurotoxicity** when co-administered with lithium: * Calcium channel blockers (e.g. verapamil, diltiazem) * Antipsychotics (e.g. haloperidol, olanzapine, clozapine, flupentixol, chlorpromazine) * Medicines with a serotonergic action (e.g. SSRIs, tricyclic antidepressants, venlafaxine, duloxetine) * Carbamazepine * Methyldopa * **Medicines associated with QT prolongation** (e.g. amiodarone, macrolides, tricyclic antidepressants) – potential for additive effects when co-administered with lithium. * **Medicines that lower seizure threshold** (e.g. SSRIs, tricyclic antidepressants, antipsychotics) – increased risk of seizures   **Care should be taken on initiation, dose adjustment or discontinuation of any interacting medicines. The onset and degree of the interaction can vary and additional lithium monitoring is likely to be indicated, with doses adjusted accordingly. Discuss with specialist team.** |

## Adverse effects and management

As well as responding to absolute values in laboratory tests, a rapid change or a consistent trend in any value should prompt caution and extra vigilance**.**

**Any serious adverse reactions should be reported to the MHRA via the Yellow Card scheme. Visit** [www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard).

For information on incidence of ADRs see relevant SPCs.

A LiSERS scale has been included in [Appendix 3](#Appendix_3) for information.

| **Adverse effect** | **Management** |
| --- | --- |
| **12-hour post dose plasma lithium level**  Below target range  NB: range for each patient to be determined by the specialist team. Note that local reference ranges may vary. | **Ensure level was taken 12 hours after lithium dose**. Assess adherence, including discussion with patient and check of GP clinical systems. Offer advice on adherence if appropriate (e.g. daily routines, reminders).  Contact specialist team for advice if suspected that the dose is too low. |
| Above target range  NB: range for each patient to be determined by the specialist team. Note that local reference ranges may vary. | **Withhold lithium if there are features of toxicity (e.g. diarrhoea, vomiting, loss of appetite, increasing confusion, myoclonic twitches).**  Ensure level was taken 12 hours after lithium dose and that the correct dose has been prescribed and taken. Repeat level if necessary. Check for interactions, hydration, patient’s physical and mental status, and features of toxicity.  **Contact specialist team for advice in all cases.**  **If ≥2.0mmol/L –** **withhold lithium immediately**, and consider sending patient to the nearest emergency department, based on clinical presentation (e.g. features of toxicity). Inform specialist team. |
| Within target range but toxicity suspected  Signs of toxicity include diarrhoea, vomiting, loss of appetite, muscle weakness, lethargy, dizziness, ataxia, lack of coordination, tinnitus, blurred vision, coarse tremor of the extremities and lower jaw, muscle hyper-irritability, choreoathetoid movements, dysarthria, and drowsiness  NB: range for each patient to be determined by the specialist team. Note that local reference ranges may vary. | **Withhold lithium.** Contact specialist team for advice.  Referral to secondary care may be required depending on the severity of symptoms and the certainty of toxicity. Use clinical judgement to determine the urgency of referral.  If referral to secondary care is not required, take **urgent** serum lithium level and U&Es. |
| Within target range but marked change since last level (and there has been no dose change)  NB: range for each patient to be determined by the specialist team. Note that local reference ranges may vary. | Establish whether level was taken 12 hours after lithium dose. Repeat level with an urgency determined by clinical judgement. Assess adherence, including discussion with patient and check of GP clinical systems. Offer advice on adherence if appropriate (e.g. daily routines, reminders).  More frequent monitoring may be required. |
| **Thyroid function**  Altered TFTs without symptoms | Contact specialist team for advice.  During lithium treatment, TFTs are commonly abnormal; the TSH can rise early in treatment but settle with time.  Note that the symptoms of hypothyroidism can be difficult to discriminate from depression and the common side effects of lithium. |
| Subclinical hypothyroidism   * Raised TSH * Normal T4 * Clinical features not overtly manifest | Contact specialist team for advice, which may include input from endocrinology services.  The optimal management of subclinical hypothyroidism during lithium treatment remains controversial, with different thresholds for treatment advocated.  Anticipate the need for additional monitoring, investigations and potentially thyroid hormone replacement based on specialist recommendations. |
| Overt hypothyroidism   * High TSH * Low T4 * Symptomatic | Contact specialist team for advice, which may include input from endocrinology services.  Thyroid hormone replacement is usually indicated and often continued throughout the course of lithium treatment. |
| Hyperthyroidism | Contact specialist team for advice, which may include input from endocrinology services. |
| **Renal function**  Polyuria and polydipsia | Polyuria is common with lithium and often well tolerated. Advise the patient to maintain adequate fluid intake and advocate excellent oral hygiene.  Contact specialist team for advice, which may include input from nephrology services. In some instances, dose adjustment or specific treatments may be advocated. |
| U&Es or calcium out of range | Check that the most recent 12-hour post dose plasma lithium level is in the desired range and act accordingly if not.  Determine whether there are symptoms and signs related to the electrolyte disturbance or lithium toxicity.  Consider arranging an ECG in those at risk for QT prolongation.  Contact specialist team for advice. Changes in calcium levels may reflect parathyroid dysfunction and input from endocrinology services may be indicated. |
| eGFR less than 45ml/min, or  rapidly falling eGFR, or  gradual decline in eGFR | The response to impaired or deteriorating renal function should be individualised.  Contact specialist team for advice, which may include input from nephrology services. A cardiovascular risk profile may guide specialist advice and should be provided if available. Use clinical judgement to determine the urgency of consultation.  Anticipate the need for increased monitoring as trends in renal function are more useful than absolute values. In the elderly or those at the extremes of muscle mass, creatinine clearance provides a better estimate of renal function than eGFR.  Adjustments to dose may be advised. If renal function is significantly compromised, lithium may no longer be an appropriate treatment and specialists will advise accordingly. |
| **Weight or BMI**  Outside healthy range | Provide appropriate support on multicomponent interventions to increase physical activity levels, improve eating behaviour and quality of diet. Remind patient of the importance of maintaining adequate fluid intake and avoiding dehydration while exercising.  Consider measuring waist circumference for individualised monitoring.  Patients should be instructed to avoid sudden changes in diet, especially avoiding low sodium diets. Lithium levels are influenced by body weight and so for patients being supported to lose weight, lithium levels may need to be checked more frequently (akin to other situations of caution). Use clinical judgement, lithium levels and the rate of weight loss when determining the frequency of blood tests. |
| **Signs of toxicity**  Typical signs and symptoms include diarrhoea, vomiting, loss of appetite, muscle weakness, lethargy, dizziness, ataxia, lack of coordination, tinnitus, blurred vision, coarse tremor of the extremities and lower jaw, muscle hyper-irritability, choreoathetoid movements, dysarthria, and drowsiness | If lithium toxicity is suspected, do an urgent lithium level immediately and seek specialist advice.  Referral to secondary care may be required depending on the severity of symptoms and the certainty of toxicity. Use clinical judgement to determine the urgency of referral. |
| **Physical health check (applicable to those taking lithium for bipolar disorder)** | Any physical health problems should be treated by the appropriate primary care health professional and communicated to the specialist team within 14 days. |

|  |  |
| --- | --- |
| Advice to patients and carers The specialist will counsel the patient with regard to the benefits and risks of treatment and will provide the patient with any relevant information and advice, including patient information leaflets on individual drugs. | The patient should be advised to report any of the following signs or symptoms to their GP without delay:Lithium toxicity (diarrhoea, vomiting, loss of appetite, muscle weakness or twitching, clumsiness or poor coordination, dizziness, confusion, tinnitus, blurred vision, coarse tremor, writhing movements, change in speech, lethargy and/or drowsiness, incontinence, restlessness, confusion, seizures/fits).  * Signs of hypothyroidism (e.g. fatigue, cold intolerance, weight gain, constipation and depression), renal dysfunction (including polyuria and polydipsia), and benign intracranial hypertension (persistent headache and visual disturbance).   **At the start of treatment patients should be given suitable information on lithium and means to keep a record of their plasma lithium levels, such as a** purple lithium pack containing a patient information booklet, record booklet, and lithium alert card. Supplies can be ordered from [nhsforms@mmm.com](mailto:nhsforms@mmm.com) or accessible at [Safer lithium therapy](https://webarchive.nationalarchives.gov.uk/ukgwa/20171030130945/http:/www.nrls.npsa.nhs.uk/resources/type/alerts/?entryid45=65426&p=2)**. The NHS lithium health monitoring App can be used as an alternative to the purple lithium monitoring book, however this is only available on Android devices and is not available via the Apple APP store**  **Additional advice for patients/carers:**   * Patients must attend regularly for monitoring and review appointments to ensure their lithium dose remains safe and effective, and bring their purple lithium pack to keep a record of their lithium levels. * Patients should always carry their lithium alert card. * Patients should notify their primary care prescriber straight away if there is any change in their health, e.g. an infection, diarrhoea or vomiting, significant weight loss, or if they become acutely unwell for any other reason. Additional lithium monitoring may be required. * Lithium should be taken regularly, as prescribed. If a dose is missed, then the next scheduled dose should be taken as usual if remembered within 6 hours;, patients should not attempt to catch up or double dose. * Patients should not stop taking lithium suddenly – doing so increases the chance of relapse. If lithium is to be stopped, it should be reduced over at least four weeks and preferably three months. * The same brand of lithium should always be taken unless otherwise instructed. Patients should become familiar with their brand and check they have received the correct one before taking. * Changes in hydration and sodium balance can affect plasma lithium levels. Patients should maintain adequate fluid intake, particularly in hot weather or when activity levels change (such as increases in exercise or immobility). Large changes in dietary sodium should be avoided – changing dietary regime may inadvertently alter sodium intake. * Excessive alcohol consumption should be avoided as it can lead to dehydration, increasing plasma lithium levels and so risk of toxicity. * Patients should be warned about common drug interactions and advised to present their ‘Lithium alert card’ whenever they redeem a new prescription. They should specifically be advised not to take OTC NSAIDs as these can increase plasma lithium levels and so risk toxicity. * Lithium may impair performance of skilled tasks (e.g. driving, operating machinery). Patients with a diagnosis of bipolar disorder must notify the Driver and Vehicle Licensing Agency (DVLA); see <https://www.gov.uk/bipolar-disorder-and-driving>. * Patients of childbearing potential should be advised that lithium carries additional risks in pregnancy and is a potential teratogen. They should be aware of the need to use reliable contraception. If they become pregnant or are planning a pregnancy while taking lithium they should not stop taking it but should tell their doctor straight away. Breastfeeding should be avoided during treatment with lithium. * For acute indications such as mania or augmentation, patients may respond within days to weeks of starting lithium. Depending on episode frequency, it may take months or even years to determine whether lithium has proven effective for relapse prevention.   **Patient information on this medicine can be found at the following links:**   * NHS: [NHS website](https://www.nhs.uk/medicines/lithium/) * MIND: [MIND](https://www.mind.org.uk/information-support/drugs-and-treatments/lithium-and-other-mood-stabilisers/lithium/)   National Patient Safety Agency purple lithium pack: Supplies of the patient information booklets can be ordered from [nhsforms@mmm.com](mailto:nhsforms@mmm.com) or [available online](https://webarchive.nationalarchives.gov.uk/ukgwa/20171030130945/http:/www.nrls.npsa.nhs.uk/resources/type/alerts/?entryid45=65426&p=2). |
| Pregnancy, paternal exposure and breastfeeding | It is the responsibility of the specialist to provide advice on the need for contraception to male and female patients on initiation and at each review, but the ongoing responsibility for providing this advice rests with both the primary care prescriber and the specialist.  **All patients should be informed of the risks and benefits of taking this medicine during pregnancy and breastfeeding.**  **Pregnancy:**  If a patient becomes pregnant whilst on lithium, the specialist team should be informed immediately (but do not stop the lithium).  Lithium should not be used during pregnancy where possible, especially in the first trimester due to risk of congenital cardiac abnormalities. In certain cases where a severe risk to the patient could exist if treatment were stopped, lithium has been continued during pregnancy; under these circumstances prescribing is the responsibility of the specialist team.  There is a risk of relapse if lithium is withdrawn, particularly in pregnancy and the postnatal period.  **Patients of child‐bearing potential should be advised to use a reliable form of contraception.** It is the responsibility of the specialist to provide advice on the need for contraception to patients on initiation of lithium, and at each review. Under shared care agreements, the ongoing responsibility for providing this advice rests with both the GP and the specialist.  Patients stabilised on lithium who are planning pregnancy should be referred to the local perinatal psychiatry team for pre-conception advice.  Information for healthcare professionals: [UK Teratology Information Service (UKTIS)](https://uktis.org/monographs/use-of-lithium-in-pregnancy/)  Information for patients and carers: [Best Use of Medicines in Pregnancy (BUMPs)](https://www.medicinesinpregnancy.org/Medicine--pregnancy/Lithium/)  **Breastfeeding:**  Lithium is secreted in breast milk and there have been case reports of neonates showing signs of lithium toxicity. Breastfeeding should be avoided during treatment with lithium. If the decision is made to breasted lithium must be used with extreme caution, under specialist supervision and with strict infant monitoring conditions.  Information for healthcare professionals: [UK Drugs in Lactation Advisory Service (UKDiLAS)](https://www.sps.nhs.uk/articles/treating-bipolar-disorder-during-breastfeeding/)  **Paternal exposure**:  Animal studies have reported spermatogenesis abnormalities that may lead to impairment of fertility. It is unknown if this risk applies to humans. |
| Specialist contact information and arrangements for referral | Details for contacting specialist must be included on the clinic letter. |
| Additional information | 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. |
| References | 1. British National Formulary accessed via <https://bnf.nice.org.uk/> on 07/12/23. 2. Summary of Product Characteristics. Priadel® 400mg prolonged release tablets. Essential Pharma. Date of revision of the text: 26/09/2022. Accessed via https://www.medicines.org.uk/emc/product/13163/ on 07/12/23. 3. Patient information leaflet: Priadel 200 mg and 400 mg prolonged-release tablets. Essential Pharma. Last revised July 2022. Accessed via <https://www.medicines.org.uk/emc/files/pil.13163.pdf>. 4. Summary of Product Characteristics. Priadel® 520mg/5mL liquid. Essential Pharma. Date of revision of the text: 26/09/2022. Accessed via <https://www.medicines.org.uk/emc/product/13164/> on 07/12/23. 5. Patient Information Leaflet. Priadel® 520mg/5mL liquid. Essential Pharma. Last revised: July 2022. Accessed via <https://www.medicines.org.uk/emc/files/pil.13164.pdf><https://products.mhra.gov.uk/>. 6. Summary of Product Characteristics. Camcolit 400 mg, controlled release Lithium Carbonate. Essential Pharma. Date of revision of the text: 05/10/23. Accessed via <https://www.medicines.org.uk/emc/product/10829> on 07/12/23. 7. Summary of Product Characteristics. Lithium Carbonate 250mg film coated tablets. Essential Pharma. Date of revision of the text: 26/09/2022. Accessed via <https://www.medicines.org.uk/emc/product/10828/> on 07/12/23. 8. Summary of Product Characteristics. Liskonum® 450mg tablets. Teofarma S.r.l. Date of revision of the text: 24/10/2022. Accessed via <https://products.mhra.gov.uk/> on 07/12/23. 9. Summary of Product Characteristics. Li-Liquid 509 mg/5mL oral syrup. Rosemont. Date of revision of the text: 19/10/23. Accessed via <https://www.medicines.org.uk/emc/> on 07/12/23. 10. NICE NG222: Depression in adults: treatment and management. June 2022. Accessed via <https://www.nice.org.uk/guidance/ng222> on 07/12/23. 11. NICE CG185: Bipolar disorder: assessment and management. September 2014 (last updated February 2020). Accessed via <https://www.nice.org.uk/guidance/cg185> on 07/12/23 12. NICE CG192: Antenatal and postnatal mental health: clinical management and service guidance. Last updated February 2020. Accessed via <https://www.nice.org.uk/guidance/cg192/> on 07/12/23. 13. Specialist Pharmacy Service. Medicines monitoring: Monitoring lithium. Last updated 10/10/23. Accessed via <https://www.sps.nhs.uk/monitorings/lithium-monitoring/> on 07/12/23. 14. Taylor D, Barnes T, Young A. The Maudsley Prescribing Guidelines in Psychiatry. 13th ed. London: Wiley-Blackwell; 2018, pp. 205-213. 15. NICE Clinical Knowledge Summary. Bipolar disorder: Lithium. Last revised November 2020. Accessed via <https://cks.nice.org.uk/topics/bipolar-disorder/prescribing-information/lithium/> on 17/02/2021. 16. NHS UK leaflet: Lithium. Accessed via <https://www.nhs.uk/medicines/lithium/> on 11/03/24. 17. National Patient Safety Agency. Safer Lithium Therapy. 2009. Archived resources available via: [[ARCHIVED CONTENT] Safer lithium therapy (nationalarchives.gov.uk)](https://webarchive.nationalarchives.gov.uk/ukgwa/20180501163555/http:/www.nrls.npsa.nhs.uk/resources/type/alerts/?entryid45=65426&p=2) |
| To be read in conjunction with the following documents | * Shared Care for Medicines Guidance – A Standard Approach (RMOC). Available from <https://future.nhs.uk/connect.ti/PrescribingMedicinesOptimisation/view?objectId=50763952> (login required) * 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/>. |

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

**Specialist contact information**

Name: *[insert name]*

Role and specialty: *[insert role and specialty]*

Daytime telephone number: *[insert daytime telephone number]*

Email address: *[insert email address]*

Alternative contact: *[insert contact information, e.g. for clinic or specialist nurse]*

Out of hours contact details: *[insert contact information, e.g. for duty doctor]*

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 HNY shared care protocol for LITHIUM 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 with *[insert brand and formulation* 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: The date must be at least <e.g. 12 weeks> from the 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 | Indication | 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.

I am NOT willing to take on the responsibility due to the following reason/s (please specifiy):

I would be willing to consider prescribing for the patient once the above criteria have been met for this treatment. If these/ this is met by you please resubmit your request to share care

Primary Care Prescriber signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

Primary Care Prescriber address/practice stamp

Appendix 3: **Lithium Side Effects Rating Scale (LiSERS)** for use bySecondary care Mental Health Services Only

 Patient name ………………………………… NHS number…………………….....

 Staff Name ………………………………………………………… Date of Assessment ………………………..

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | No |  |  | Yes |  |
|  |  |  |  | Mild | Moderate | Severe |
| 1 | Increased appetite | ÿ |  | ÿ | ÿ | ÿ |
| 2 | Increased thirst | ÿ |  | ÿ | ÿ | ÿ |
| 3 | Increased output of urine | ÿ |  | ÿ | ÿ | ÿ |
| 4 | Weight gain | ÿ |  | ÿ | ÿ | ÿ |
| 5 | Thyroid problems (check fatigue, dry skin, constipation) | ÿ |  | ÿ | ÿ | ÿ |
| 6 | Metallic Taste | ÿ |  | ÿ | ÿ | ÿ |
| 7 | Feeling restless | ÿ |  | ÿ | ÿ | ÿ |
| 8 | Dry Mouth | ÿ |  | ÿ | ÿ | ÿ |
| 9 | Nausea and feeling sick | ÿ |  | ÿ | ÿ | ÿ |
| 10 | Dizziness | ÿ |  | ÿ | ÿ | ÿ |
| 11 | Mild tremor (fine tremor) | ÿ |  | ÿ | ÿ | ÿ |
| 12 | Muscle pains and tension | ÿ |  | ÿ | ÿ | ÿ |
| 13 | Difficulties in memory | ÿ |  | ÿ | ÿ | ÿ |
| 14 | Difficulties with concentration | ÿ |  | ÿ | ÿ | ÿ |
| 15 | Feeling slowed down in my thinking and creativity | ÿ |  | ÿ | ÿ | ÿ |
| 16 | Sleep problems | ÿ |  | ÿ | ÿ | ÿ |
| 17 | Ankle oedema | ÿ |  | ÿ | ÿ | ÿ |
| 18 | Headaches | ÿ |  | ÿ | ÿ | ÿ |
| 19 | Excessive sweating | ÿ |  | ÿ | ÿ | ÿ |
| 20 | Psoriasis | ÿ | ÿ | ÿ | ÿ |
| 21 \* | Blurred vision | ÿ |  | ÿ | ÿ | ÿ |
| 22\* | Palpitations or feeling my heart pounding | ÿ |  | ÿ | ÿ | ÿ |
| 23\* | Feeling drowsy and lethargic during the day | ÿ |  | ÿ | ÿ | ÿ |
| 24\* | Diarrhoea / vomiting | ÿ |  | ÿ | ÿ | ÿ |
| 25 \* | Severe tremor (coarse tremor) | ÿ | ÿ | ÿ | ÿ |
| 26 \* | Confusion | ÿ |  | ÿ | ÿ | ÿ |
| 27\* | Muscle weakness/ twitching | ÿ |  | ÿ | ÿ | ÿ |
| 28\* | Lack of Coordination/ unsteady on feet | ÿ |  | ÿ | ÿ | ÿ |
| 29\* | Slurred speech | ÿ | ÿ | ÿ | ÿ |
| 30 | Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | ÿ |  | ÿ | ÿ | ÿ |

\* indicates possibility of a toxic lithium level: consider urgent serum lithium level if any of these symptoms reported