Frimley Health and Care

BOB Buckinghamshire, Oxfordshire and Berkshire West Integrated Care System

**Approved for use in Berkshire West**

NHS

# Prescribing Guidelines

*Prescribing arrangement for the management of patients transferring from* ***Secondary Care to Primary Care***

# Lithium for patients within adult services

POC PG 010

For the latest information on interactions and adverse effects, always consult the latest version of the Summary of Product Characteristics (SPC), which can be found at: http://www.medicines.org.uk/

**Approval and Authorisation**

| Approved by | Job Title | Date |
|---|---|---|
| BW Prescribing Oversight Committee | G Braham, Chair | |
| Frimley Medicines Optimisation Group. For use in Slough, Royal Borough of Windsor and Maidenhead and Bracknell Forest places. | T Langran, Chair | April 2022 |
| BOB Area Prescribing Committee for use in Berkshire West (adoption of v.4.0) | S Desai, Acting Chair | March 2023 |

**Change History**

| Version | Date | Author | Reason |
|---|---|---|---|
| v.1.0 | First edition | Ozma Tahir | New document |
| v. 2.0 | September 2010 | Ozma Tahir | Update of September 2010 Shared Care Arrangement |
| v.2.1 | | Ozma Tahir | Review following NICE Guidance CG185 being published |
| v.3.0 | February 2018 | Ozma Tahir | Review |
| v.4.0 | January 2022 | Liz Dobson | Adoption of RMOC draft protocol (approval by RMOC pending) |

***This prescribing guideline remains open to review considering any new evidence.***

This guideline should only be viewed online and will no longer be valid if printed off or saved locally

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| Author | Liz Dobson | Date of production: | January 2022 |
| Job Title | Lead Governance and Clinical Economy Pharmacist, Berkshire Healthcare Foundation Trust | Review Date | January 2024 |
| Protocol Lead | | Version | v.4.0 |

## Principles of Prescribing Arrangement

These prescribing Guidelines are a local policy to enable General Practitioners to accept responsibility for the prescribing and monitoring of medicines, treatments, or devices in primary care, in agreement with the initiating specialist service.

This guideline provides a framework for the seamless transfer of care for a person from a hospital or specialist service setting to general practice, where this is appropriate and, in the patient's best interest. People should never be placed in a position where they are unable to obtain the medicines they need because of a lack of communication between primary and secondary care.

It is important to note, in line with the General Medical Council guidance on prescribing, doctors are responsible for prescriptions they sign, and their decisions and actions when they supply and administers medicines and devices; or authorise or instruct others to do so.

## Transfer of care

Transfer of clinical responsibility to primary care should only be considered where the patient's clinical condition is stable or predictable.

Referral to the GP should only take place once the GP has agreed to this in **each individual case**, and the hospital or specialist will continue to provide prescriptions until a successful transfer of responsibilities. The GP should confirm the agreement and acceptance of the shared care prescribing arrangement and that supply arrangements have been finalised. The secondary care provider must supply an adequate amount of the medication to cover this transition period. The patient should then be informed to obtain further prescriptions from the GP.

Clinicians should clearly explain what a shared care arrangement means for the patient and why it might be an option in their case. The patient or their carers should have the opportunity to ask questions and explore other options if they don't feel confident that shared care will work for them. They should be fully involved in, and in agreement with, the decisions to move to a shared care model for their on-going care. **Importantly, patients should never be used as a conduit for informing the GP that the prescribing is to be transferred.**

## Patient consent

The best interest, agreement and preferences of the patient should be at the centre of the decision to begin shared care and their wishes followed wherever possible. Patients should be able to decline shared care if, after due consideration of the options, they decide that it is not in their best interests. Involvement of carers may be critical, especially in circumstances when it is not possible for the patients to make a decision e.g. mental capacity; where appropriate they should be included in the discussion about shared care.

# Lithium for patients within adult services

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| **1. Background** | Lithium is licensed for the treatment and prevention of mania, bipolar depression, recurrent depression (unipolar) and aggressive/self-mutilating behaviour. It is also recommended for augmentation of antidepressants in major depressive disorder.<br><br>Lithium can be very effective for acute episodes of mental illness, following which it is often continued. Likewise in prophylaxis, but longer periods of treatment may be required to establish its benefits. Not all patients respond to lithium, so the benefits and risks of continuation should be regularly and individually assessed. Lithium treatment should not be stopped suddenly, as this can cause relapse.<br><br>The benefits and many of the adverse effects of lithium relate to its plasma concentration. Lithium has a narrow therapeutic window of between 0.4 and 0.8 mmol/L for most indications, although a narrower range may be specified for individual patients. Higher target plasma levels (0.8–1 mmol/litre) are occasionally 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.**<br><br>The plasma concentration of lithium is a function of absorption, distribution, and elimination. In salt form, lithium is readily absorbed from the gastrointestinal tract, but the rate and extent of absorption may differ between formulations. Levels fluctuate during distribution, so measurements are made 12 hours post-dose for monitoring purposes. Lithium is almost exclusively eliminated by the kidneys.<br><br>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. Excluding excessive ingestion, toxicity most commonly arises due to a reduced elimination of lithium. Elimination is sensitive to sodium handling, so low-salt diets, dehydration, certain drug interactions and medical conditions such as Addison's disease are risk factors. Lithium toxicity can itself impair renal function, so rapid escalations in plasma levels may occur. Patients, carers, and clinicians should be familiar with the features of lithium toxicity, the common causes, and how to seek appropriate help.<br><br>With long-term use, lithium can have adverse effects on the kidneys, the thyroid, and the parathyroid glands. Routine monitoring of function is therefore required.<br><br>Lithium should always be prescribed by brand and form. 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. |

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| **2. Indications**<br><br>**(Please state whether licensed or unlicensed)** | Licensed indications:<br>• Treatment and prophylaxis of mania<br>• Treatment and prophylaxis of bipolar disorder<br>• Treatment and prophylaxis of recurrent depression<br>• Treatment and prophylaxis of aggressive or self-harming behaviour<br>• Augmentation of antidepressants in patients with treatment resistant depression‡ See NICE CG90: Depression in adults<br>‡ Off-label indications. (Please note licensed indications vary by manufacturer). |
| **3. Locally agreed off-label use** | |
| **4. Contraindications and cautions**<br><br>Please note this does not replace the Summary of Product Characteristics (SPC) and should be read in conjunction with it. | **Contraindications:**<br>• Hypersensitivity to lithium or any of the excipients<br>• Addison's disease<br>• Cardiac disease associated with rhythm disorder<br>• Cardiac insufficiency<br>• Family or personal history of Brugada syndrome<br>• Patients with abnormal sodium levels, including dehydrated patients or those on low sodium diets<br>• Untreated hypothyroidism<br>• Severe renal impairment<br>• Breastfeeding<br>**Cautions:**<br>• Mild to moderate renal impairment<br>• Use in elderly patients<br>• 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, gastro-enteritis or urinary infections, when dose reduction may be required.<br>• Review lithium dose if diarrhoea and / or vomiting present and in cases where the patient has an infection and / or profuse sweating. Adjustments may be required.<br>• Risk of seizures may be increased if co-administered with drugs that lower the seizure threshold, or in patients with epilepsy.<br>• Cardiac disease<br>• May exacerbate psoriasis<br>• 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.<br><br>Please see SPC for comprehensive information. |
| **5. Initiation and ongoing dose regime**<br><br>Note -<br>•Transfer of monitoring and prescribing to primary care is normally after the patient's dose has been optimised and with satisfactory investigation results for | **Initial stabilisation:**<br>Usual starting dose for doses for all preparations are adjusted according to patient response and serum lithium concentration.<br><br>Most patients are prescribed lithium in tablet form (lithium carbonate). Doses may initially be divided throughout the day, but once-daily |

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| at least 4 weeks<br>•The duration of treatment & frequency of review will be determined by the specialist, based on clinical response and tolerability.<br>•All dose or formulation adjustments will be the responsibility of the initiating specialist unless directions have been discussed and agreed with the primary care clinician<br>•Termination of treatment will be the responsibility of the specialist. | administration is preferred when serum-lithium concentration is stabilised to target range (specified by specialist team).<br>In practice, the typical starting dose is 400 mg once daily, adjusted according to patient response and 12-hour plasma levels. Lower starting doses (such as 200 mg once daily) are preferable in the elderly and/or cases in which caution is required.<br><br>In some scenarios, such as acute mania, a higher starting dose (loading) may be preferable. The BNF outlines the typical starting doses by indication and brand.<br><br>**Lithium citrate** is absorbed at a different rate and to a different extent (bioavailability) compared to tablet forms. 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. Switches between tablet and liquid formulations should be overseen by specialist services as dose conversions require the calculation of milligram equivalence between lithium carbonate and lithium citrate.<br><br>**The loading period must be prescribed by the initiating specialist.**<br><br>**<u>Maintenance dose (following initial stabilisation):</u>**<br>Individualised, to achieve plasma levels in the range specified for the patient.<br>**The initial maintenance dose must be prescribed by the initiating specialist.**<br><br>**<u>Conditions requiring dose adjustment:</u>**<br>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.<br><br>**<u>Stopping lithium treatment</u>**<br>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. |

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| **6. Pharmaceutical aspects** | Route of administration | Oral |
| | Formulation: | **Lithium is available as lithium carbonate (tablet formulations) and lithium citrate (liquid formulations). The patient should be maintained on the same brand and formulation of lithium. If a switch in brand or formulation is considered, refer to the specialist team.**<br><br>**Lithium Carbonate:**<br>• Priadel® 200 mg and 400 mg prolonged-release tablets<br>• Camcolit® 400 mg controlled release tablets<br>• Liskonum® 450 mg controlled release tablets<br>• Lithium carbonate Essential Pharma: 250 mg film-coated tablets (immediate release)<br><br>**Lithium Citrate:**<br>• Priadel® Liquid: 520 mg/5 mL strength sugar-free, pineapple flavoured syrup<br>• Li-Liquid®: 509 mg/5 mL and 1,018 mg/5 mL strength cherry flavoured syrup<br><br>**<u>Always prescribe lithium by brand name.</u> Switching preparation (either between brands of the same form or changing between tablets and liquid) additional monitoring to ensure that the 12-hour plasma lithium level remains in the desired range.**<br>**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.<br>Priadel® 200mg and 400mg tablets have score lines and can be divided accurately to provide dosage requirements as small as 100mg within product license.<br>Liskonum® 450mg tablets are licensed to be halved for the purposes of dose adjustment.<br>Other brands may be scored to facilitate breaking for ease of swallowing, and 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; <u>a double dose should not be taken to make up for a missed dose.</u> |

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| **7. Significant medicine interactions**<br><br>For a comprehensive list consult the BNF or Summary of Product Characteristics. SPC | **The following list is not exhaustive; please see SPC for comprehensive information and recommended management.**<br>**The following drugs must not be prescribed without consultation with specialists:**<br>• Drugs that may increase plasma lithium concentrations (by reducing renal elimination) and so risk toxicity:<br>  ○ 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. 'As required' use of NSAIDs should be avoided where possible since it may cause fluctuations in lithium levels and makes monitoring levels challenging.<br>  ○ Diuretics, particularly thiazide diuretics<br>  ○ Angiotensin converting enzyme (ACE) inhibitors and angiotensin II receptor antagonists<br>  ○ Other drugs which alter electrolyte balance with the potential to alter lithium clearance e.g. steroids.<br>  ○ Certain antibiotics including metronidazole and tetracyclines<br>• Drugs that may decrease plasma lithium concentrations (by increasing renal elimination) and so risk loss of efficacy:<br>  ○ Theophylline<br>  ○ Products which contain sodium bicarbonate e.g. antacids<br>• Drugs that may increase risk of neurotoxicity when co-administered with lithium:<br>  ○ Calcium channel blockers (e.g. verapamil, diltiazem)<br>  ○ Antipsychotics (e.g. haloperidol, olanzapine, clozapine, flupentixol, chlorpromazine)<br>  ○ Antidepressants with a serotonergic action (e.g. SSRIs, tricyclic antidepressants, venlafaxine, duloxetine)<br>  ○ Carbamazepine<br>• Drugs associated with QT prolongation (e.g. amiodarone, macrolides, tricyclic antidepressants) – potential for additive effects when co-administered with lithium.<br>• Drugs that lower seizure threshold (e.g. SSRIs, tricyclic antidepressants, antipsychotics) – increased risk of seizures<br><br>**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.** |
| **8. 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 lithium therapy is optimised on the chosen formulation with no anticipated further changes expected in immediate future will prescribing and monitoring be transferred.<br>Recent and relevant investigation results must be documented in the corresponding letter from specialist<br><br>**Baseline (all indications):**<br>• Urea and electrolytes (U+Es), including calcium and eGFR<br>• Thyroid function tests (TFTs)<br>• Electrocardiogram (ECG) recommended for patients with existing |

<table>
<tr><td></td><td colspan="2">cardiovascular disease (CVD) or risk factors<br>• Full blood count (FBC)<br>• Height, weight, and body mass index (BMI)<br>Additional baseline investigations (bipolar disorder):<br>• Cardiovascular status including pulse and blood pressure (BP)<br>• Metabolic status including fasting blood glucose, $HbA_{1c}$ and blood lipid profile.<br>• Liver function tests (LFTs).<br>Initial monitoring:<br>• 12-hour plasma lithium levels one week after initiation and one week after any change in dose or formulation. Typically this means levels will be monitored weekly until the desired level and clinical effect is achieved.<br>Ongoing monitoring:<br>• Review patient on request from GPs (e.g. following annual check-up) if there are concerns about their mental health, effectiveness of treatment or uncertainty about the ongoing need for lithium.</td></tr>
<tr><td rowspan="4">9. Ongoing monitoring requirements to be undertaken by primary care.<br><br>See section 10 for further guidance on management of adverse effects/ responding to monitoring results.</td><td><u>Monitoring – all indications</u></td><td><u>Frequency</u></td></tr>
<tr><td>Plasma lithium level taken 12 hours post-dose.<br>• Record results in patient's NPSA purple lithium pack, NHS Health Monitor for Lithium app, or other suitable recording mechanism.<br>• It is advisable to document the actual time interval between the last dose and the blood sample</td><td>At least every 12 weeks for the first year, then every 3-6 months.<br>More frequent monitoring (at least three monthly) may be advised by the specialist team in some circumstances (e.g. elderly, renal impairment, concurrent interacting medicines, risk of impaired renal or thyroid function, raised calcium, significant changes in sodium of fluid intake, poor symptom control or adherence) or if most recent 12-hour plasma lithium level is at the threshold of target range (e.g. if last reading above 0.8mmol/L).</td></tr>
<tr><td>U+Es (including calcium and eGFR), TFTs<br>Height, weight, and BMI.</td><td>Every 6 months.<br>More frequent monitoring (particularly renal function) may be advised by the specialist team in some circumstances (e.g. elderly, renal impairment, altered TFTs, concurrent interacting medicines).</td></tr>
<tr><td>Signs of toxicity<br>Enquire about and document signs and symptoms which might indicate toxicity, e.g. severe handshake ('tremor'), stomach-ache along with feeling sick or having diarrhoea, muscle weakness, being unsteady on your feet, muscle twitches, slurring of words, blurred vision, confusion, feeling unusually sleepy)</td><td>At every consultation</td></tr>
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| | Additional monitoring – bipolar disorder | Frequency |
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| | **Diet, nutritional status, and level of physical activity.**<br>**Cardiovascular status including pulse and BP.**<br>**Metabolic status including fasting blood glucose, $HbA_{1c}$ and blood lipid profile.**<br>**LFTs.**<br>**Ongoing monitoring:** Review patient at least every 12 months to assess their mental health, effectiveness of treatment and the ongoing need for lithium. | Annually as part of physical health check recommended by NICE (CG185 Bipolar disorder: assessment and management).<br><br>As part of the annual assessment, GPs may decide to refer for Specialist review e.g. if patient is considering stopping treatment or if the effectiveness of treatment is in question/ early warning signs of relapse, like sleep disturbance Scenario: Routine bipolar disorder review \| Management \| Bipolar disorder \| CKS \| NICE |
| **10. Adverse effects and managements**<br><br>**Any serious adverse reactions should be reported to the MHRA via the Yellow Card scheme** www.mhra.gov.uk/yellowcard | **Result** | **Action for GP** |
| | **12-hour plasma lithium level.** NB: range for each patient to be determined by the specialist team.<br><br>Below range | Assess adherence, including discussion with patient and check of GP clinical systems. Offer advice on adherence if appropriate (e.g. daily routines, reminders). Ensure level was taken 12 hours after lithium dose.<br>Contact specialist team for advice if suspected that the dose is too low. |
| | Above range | Ensure level was taken 12 hours after lithium dose and that the correct dose has been prescribed and taken. Check for interactions, hydration, patient's physical and mental status, and features of toxicity. Repeat level if necessary.<br>**Withhold lithium** and contact specialist team for advice.<br><br>If ≥2.0mmol/L - send patient to A&E and inform specialist team. |
| | Within range but patient has signs of toxicity | Contact specialist team for advice.<br><br>Referral to secondary care may be required depending on the severity of symptoms and the certainty of toxicity. Use clinical judgement to |

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| | | determine the urgency of referral. |
| | Within range but marked change since last level (and there has been no dose change) | Repeat level. Assess adherence, including discussion with patient and check of GP clinical systems. Offer advice on adherence if appropriate (e.g. daily routines, reminders).<br>Ensure level was taken 12 hours after lithium dose.<br>More frequent monitoring may be required. |
| | **Thyroid function**<br>Altered TFTs without symptoms | Contact specialist team for advice.<br>During lithium treatment, TFTs are commonly abnormal; the TSH can rise early in treatment but settle with time.<br>Note that the symptoms of hypothyroidism can be difficult to discriminate from depression and the common side effects of lithium. |
| | Subclinical hypothyroidism<br>• Raised TSH<br>• Normal T4<br>Clinical features not overly manifest | Contact specialist team for advice, which may include input from endocrinology services.<br>The optimal management of subclinical hypothyroidism during lithium treatment remains controversial, with different thresholds for treatment advocated.<br>Anticipate the need for additional monitoring, investigations and potentially thyroid hormone replacement based on specialist recommendations. |
| | Overt hypothyroidism<br>• High TSH<br>• Low T4<br>• Symptomatic | Contact specialist team for advice, which may include input from endocrinology services.<br>Thyroid hormone replacement is usually indicated and often continued throughout the course of lithium treatment. |
| | **Renal function**<br>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.<br>Contact specialist team for advice, which may include input from nephrology services. In some |

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| | | instances, dose adjustment or specific treatments may be advocated. |
| | U&Es (including calcium) out of range | Check that the most recent 12-hour plasma lithium level is in the desired range and act accordingly if not.<br>Determine whether there are symptoms and signs related to the electrolyte disturbance or lithium toxicity.<br>Consider arranging an ECG in those at risk for QT prolongation.<br>Contact specialist team for advice. Changes in calcium levels may reflect parathyroid dysfunction and input from endocrinology services may be indicated. |
| | eGFR <45ml/min<br>rapidly falling eGFR<br>gradual decline in eGFR | The response to impaired or deteriorating renal function should be individualised.<br>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.<br>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 that eGFR.<br>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 and BMI**<br>Outside healthy range | Provide appropriate support on multicomponent interventions to increase physical activity levels, improve eating behaviour and quality of diet.<br>Consider measuring waist |

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| | | circumference for individualised monitoring. |
| | **Signs of toxicity**<br>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.<br>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 (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. |
| **11. Advice to patients and carers**<br>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. | **The patient should be advised to report any of the following signs or symptoms to their GP without delay:**<br>• Lithium toxicity (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)<br>• 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).<br><br>**Additional advice for patients/ carers:**<br>• Lithium should be taken regularly, as prescribed. If doses are missed, patients should not attempt to catch up or double dose<br>• 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.<br>• 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.<br>• 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.<br>• Substantial changes in plasma lithium levels can occur if patients develop | |

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| | diarrhoea or vomiting, or if they become acutely ill for any reason. Patients should seek medical advice in such instances.<br>• Excessive alcohol consumption should be avoided as it can lead to dehydration, increasing plasma lithium levels and so risk of toxicity.<br>• 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.<br>• 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).<br>• Women 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 and that they should tell their doctor straight away if they become pregnant while taking lithium. Lithium should not be taken if breastfeeding.<br>• 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 release prevention.<br>**At the start of treatment patients should be given suitable information on lithium and means to keep a record of their serum lithium levels, for example the NHS Health Monitor for Lithium app, or a purple lithium pack.**<br>**Patient information on this medicine can be found at the following links:**<br>• NHS: https://www.nhs.uk/medicines/lithium/<br>• MIND: https://www.mind.org.uk/information-support/drugs-and-treatments/lithium-and-other-mood-stabilisers/lithium/<br>• National Patient Safety Agency purple lithium pack: https://www.sps.nhs.uk/wp-content/uploads/2018/02/2009-NRLS-0921-Lithium-patientet-2009.12.01-v1.pdf |
| **12. Pregnancy, paternal exposure and breast feeding**<br>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 GP and the specialist. | **All patients should be informed of the risks and benefits of taking this medicine during pregnancy and breastfeeding.**<br>**Pregnancy:** Lithium should not be used during pregnancy, especially in the first trimester (risk of teratogenicity, including 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.<br>If a patient becomes pregnant whilst on lithium, the specialist team should be informed immediately (but do not stop the lithium).<br>**Women 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.<br>**Breastfeeding:**<br>Lithium is secreted in breast milk and there have been case reports of neonates showing signs of lithium toxicity. Lithium should be avoided during |

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| | breastfeeding.<br>**Paternal exposure:**<br>Animal studies have reported spermatogenesis abnormalities that may lead to impairment of fertility- it is unknown if this risk applies to humans. |
| **13. Specialist contact information** | Detailed on Patient Clinic Letter |
| **14. Additional information** | Where patient care is transferred from one specialist service or GP practice to another, a new shared care agreement must be completed. |
| **15. References** | • eBNF accessed via www.medicinescomplete.com on 17/02/2021.<br>• Martindale: The Complete Drug Reference. Accessed via www.medicinescomplete.com on 16/02/2021.<br>• Summary of Product Characteristics. Priadel® 400mg prolonged release tablets. Essential Pharma. Date of revision of the text: 24/08/2020. Accessed via https://products.mhra.gov.uk/ on 17/02/2021.<br>• Summary of Product Characteristics. Priadel® 520mg/5mL liquid. Essential Pharma. Date of revision of the text: 24/08/2020. Accessed via https://products.mhra.gov.uk/ on 17/02/2021.<br>• Patient Information Leaflet. Priadel® 520mg/5mL liquid. Essential Pharma. Date of revision of the text: June 2020. Accessed via https://products.mhra.gov.uk/ on 23/02/2021.<br>• Summary of Product Characteristics. Camcolit 400 mg, controlled release Lithium Carbonate. Essential Pharma. Date of revision of the text: 28/09/2020. Accessed via https://www.medicines.org.uk/emc/ on 17/02/2021.<br>• Summary of Product Characteristics. Lithium Carbonate 250mg film coated tablets. Essential Pharma. Date of revision of the text: 28/09/2020. Accessed via https://www.medicines.org.uk/emc/ on 17/02/2021.<br>• Summary of Product Characteristics. Liskonum® 450mg tablets. Teofarma S.r.l. Date of revision of the text: 14/05/2020. Accessed via https://products.mhra.gov.uk/ on 23/02/2021.<br>• Summary of Product Characteristics. Li-Liquid 509 mg/5mL oral syrup. Rosemont. Date of revision of the text: 27/12/2019. Accessed via https://www.medicines.org.uk/emc/ on 23/02/2021.<br>• NICE CG90: Depression in adults: recognition and management. October 2009. Accessed via https://www.nice.org.uk/guidance/cg90 on 27/04/2021.<br>• NICE CG185: Bipolar disorder: assessment and management. September 2014 (last updated February 2020). Accessed via https://www.nice.org.uk/guidance/cg185 on 17/02/2021.<br>• Specialist Pharmacy Service. September 2020. Suggestions for Therapeutic Drug Monitoring in Adults in Primary Care. Accessed via https://www.sps.nhs.uk/articles/suggestions-for-therapeutic-drug-monitoring-in-adults-in-primary-care-2/ on 17/02/2021.<br>• Taylor D, Barnes T, Young A. The Maudsley Prescribing Guidelines in Psychiatry. 13th ed. London: Wiley-Blackwell; 2018, pp. 205-213.<br>• 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.<br>• NHS UK leaflet: Lithium. Accessed via https://www.nhs.uk/medicines/lithium/on 17/02/2021.<br>• National Patient Safety Agency. Safer Lithium Therapy. 2009. Archived resources available via: https://www.sps.nhs.uk/articles/npsa-alert-safer-lithium-therapy-2009/.<br>• Lithium monitoring – SPS - Specialist Pharmacy Service – The first stop for |

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| | professional medicines advice |
| **16. To be read in conjunction with the following documents** | • RMOC Shared Care Guidance<br>• NHSE/NHSCC guidance – items which should not be routinely prescribed in primary care: guidance for CCGs<br>• NHSE policy- Responsibility for prescribing between Primary & Secondary/Tertiary Care |
| **17. Local arrangements for referral**<br>Define the referral procedure from hospital to primary care prescriber & route of return should the patient's condition change. | For advice if a patent's condition changes, please find specific contact details from the latest clinic letter or, for urgent requests, you can speak to a mental health practitioner team 24 hours a day, 7 days a week. They will guide you to the right service to help you. Call 0300 365 2000 (Press option 4).<br>There are some instances where GPs may agree to carry out the initiation of lithium under the instruction of the Outpatient Clinician (see below). |