Shared Care Guideline for the Prescribing & Monitoring of Lithium (Luton and Beds MH and BCCG/LCCG only) –

PATIENT’S NAME:

PATIENT’S ADDRESS:

HOSPITAL NAME and NHS NUMBER / RIO number:

CONSULTANT’S NAME AND CONTACT DETAILS:

GP’s NAME:

ELFT prescribing guidelines on lithium can be accessed by following the link http://elftintranet/sites/common/private/search_quick20.aspx?q=lithium

What are key elements of the process to ensure good shared care arrangements are in place?

These are suggested ways in which the management of patients who are prescribed lithium can be shared between the specialist and the general practitioner.

- GPs are invited to participate in shared care to support patient care in the primary care environment.
- If the GP is not confident in undertaking this role, they are under no obligation to do so and this should be discussed with the specialist within a reasonable timeframe. In such an event the total clinical responsibility for the patient for the diagnosed condition remains with the specialist. If a GP is unhappy to participate in a shared care agreement, the CCG should be asked by the Specialist for assistance in facilitating suitable longer term prescribing and monitoring arrangements for the patient.
- Good communication is essential for shared care to work effectively. All clinicians are encouraged to share important clinical information including dose changes/high lithium levels etc. as soon as possible by way of fax or other local arrangement in addition to any requisite formal correspondence. Sharing of care requires good communication between the specialist, GP, community pharmacist and the patient. The intention to share care should be explained to the patient and agreed by them.

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• In addition, CCG policies on clinical effectiveness should be adhered to.
• The GP should have sufficient information on the drug to either allow them to monitor the patient’s response to therapy and adjust dosages as required and know in what circumstances they should refer the patient back to the hospital clinician.
• Informing the patient’s usual community pharmacist of the medication will help ensure that supplies are available.
INTRODUCTION

Lithium is used for the prophylaxis and treatment of mania, bipolar affective disorder, refractory unipolar depression and occasional ‘off-label’ use for other conditions (GPs will be informed if the proposed indication is ‘off-label’). The therapeutic range for lithium is narrow and all patients prescribed this medicine should be subject to routine monitoring. As patients frequently transfer between primary and secondary care there should be clear guidelines about how this monitoring should be carried out.

Before starting treatment with lithium, a physical examination should be carried out, including the measurement of blood pressure. Blood should be taken for estimation of at least renal function and thyroid function tests. Ideally a full blood count and ECG should be performed especially where there is a history of cardiac disease or where a patient is also prescribed drugs that interact with lithium (see Appendix A and eBNF).

Lithium levels are determined on a sample taken 12 hours after the last dose. The therapeutic range for lithium is specified by the local pathology department, (usually 0.4-1.0 mmol/litre) and it is important that patients are maintained within this range in order to avoid serious adverse effects. The lower end of the range should be used for maintenance therapy in elderly patients.

All patients taking lithium should be issued with a Lithium Therapy Pack by the Secondary Care Mental Health Service on initiation of lithium treatment. This guideline fulfills the requirement of the NICE Clinical Guidelines for Bipolar Disorder (CG38) to establish a shared care guideline with the patient’s General Practitioner for the prescribing and monitoring of lithium. It also reflects the recommendations within the Patient Safety Alert ‘Safer lithium therapy’ issued by the National Patient Safety Agency in December 2009 (NPSA/2009/PSA005).

Lithium Monitoring app

A Lithium Monitoring app has been launched (owned by South West London & St George’s Mental Health Trust). This app has been designed to help patient manage their medication and associated physical health monitoring. It enables patients to keep a record of their lithium levels and acts as a reminder of when their next health check is due (i.e, date of next check of e GFR, TFTs, U&Es and weight). The app also contains the functionality to record mood and sleep patterns via a mood and sleep diary function.

As this app has been developed by a third party, patients should be advised to read the Terms and Conditions in full before they agree to download the app.

It should be noted that this app maybe useful for some patients but it does not replace the purple lithium booklet as not all patients will be able to use or access the app.

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SECONDARY CARE MENTAL HEALTH SERVICE RESPONSIBILITIES

1. Assess the patient, determine a diagnosis and decide on a management strategy.
2. Undertake baseline investigations which must include the monitoring of calcium, renal function, thyroid function tests, FBC, BP and pulse, BMI and where necessary ECG. Communicate information to GP in writing and complete lithium record book.
3. A lithium pack containing a lithium patient information booklet, alert card and record book should be issued by the Secondary Care Mental Health Service at the same time as the first prescription. The anticipated benefits and side effects/risks should also be discussed at this point. Discussion around maintaining on-going monitoring and the importance of taking the lithium record book to all appointments should also be highlighted. (If the patient does not have the mental capacity to understand, ensure that the relevant carer(s) receive the necessary information.)
4. All levels and monitoring results should be updated in the lithium record book (if available) and notified in writing to the GP.
5. Discuss contraceptive use with women of child bearing age.
6. Initiate treatment (by brand and formulation) and prescribe lithium until the dose has been stable for at least four weeks. Notify GP of this fact.
7. Continue routine monitoring (notifying the GP in writing of any blood test results carried out) until prescribing is transferred to the GP. Inform GP of any additional monitoring requirements.
8. Ensure that if any changes are made to treatment, the lithium record book is updated and the GP notified in writing.
9. Carry out any routine monitoring due if the patient is readmitted to hospital according to the information provided by the GP, update the lithium record book as necessary and notify the GP in writing of any results.
10. Fully communicate in writing to GP all results of monitoring carried out and blood lithium levels (if not available electronically). This is especially important if the patient refuses to carry a lithium pack.
11. Support the GP with changing the dose if the lithium level is outside the therapeutic range or the patient is experiencing side effects.
12. Promptly review patient if necessary when there are signs of lithium toxicity, renal impairment, unmanageable side effects or deterioration in mental state. Inform GP of any changes through formal correspondence within 2 weeks and supply necessary prescription for 2 week duration if dose changed. Information may need to be shared by fax or telephone if doses have been changed so necessary adjustments can be made to GP records.
13. When a review of the patient takes place in secondary care, it is the responsibility of the Secondary Care Mental Health Service to request copies of the most recent blood test results from either the GP or the hospital laboratory if these have not already been provided.
SUMMARY OF GP RESPONSIBILITIES

1. Take over the routine prescribing and monitoring of lithium levels (3 monthly or more frequently if indicated) once the dose has been stable for at least four weeks. Ensure the brand and formulation prescribed is the same as that stated by the Secondary Care Mental Health Service.

2. Carry out the routine monitoring as per schedule below. It is essential that GPs check recent blood test results prior to issuing a prescription for lithium.

3. Adjust the dose of lithium with support of the Secondary Care Mental Health Service if the patient has levels outside of the therapeutic range or develops side effects. (See Appendix A, Precautions and eBNF)

4. Ensure that the Secondary Care Mental Health Service is informed of any physical illness/medication that may affect the patient's treatment with lithium. (See Appendix A and eBNF)

5. Update the lithium record book with lithium levels/monitoring results (if available).

6. Update the lithium record book if any changes to treatment are made and communicate this information to the Secondary Care Mental Health Service in writing.

7. If a patient does not comply with the necessary monitoring requirements, the GP should discontinue prescribing and contact the Secondary Care Mental Health Service.

8. Stop lithium if signs of lithium toxicity become apparent and contact the Secondary Care Mental Health Service.

9. The GP should seek the opinion of the Secondary Care Mental Health Service in the following circumstances:
   a. If the lithium level falls below 0.4mmol/L or goes above 1.0mmol/L. (Be aware that some patients may have a target lithium level outside of this range e.g. lower in elderly patients.) Seek urgent advice if the level is high.
   b. Patient becomes mentally unwell (shows signs and symptoms of mania or depression).
   c. The patient shows signs of lithium toxicity – stop lithium treatment.
   d. Non-compliance or suspected non-compliance with treatment and/or monitoring requirements.
   e. Pregnancy (and breastfeeding)
   f. Introduction of a potentially interacting medication (see Appendix A and eBNF)
   g. Overdose/suspected overdose of lithium or any other psychotropic medication.

MONITORING FREQUENCY

1. Blood tests for lithium Levels should be taken 10-14 hours post dose.
2. If a twice daily regime is prescribed, the patient should be advised to withhold morning dose until after the blood sample has been taken.

3. A repeat lithium level should be taken 4-7 days following a change in dose. Blood forms should be issued to the patient at the point of contact by whichever clinician (primary or secondary care) has seen the patient and made the dose adjustment.

4. If there is to be a change to the prescribed dose, a current lithium level should be available. This should be no more than two weeks old.

5. It is essential that routine measurement of lithium blood levels should take place every 3 months or more frequently if necessary (as indicated by specialist).

6. It is essential that thyroid function, renal function and BMI (weight) should be checked every 6 months for as long as treatment continues or more frequently if indicated.

7. In addition, NICE Guidance (and NPSA Alert) recommends that FBC, BP, and pulse should be monitored annually along with fasting lipid screen (>40 years), blood glucose levels and smoking/alcohol status. Calcium levels should also be checked annually.

8. Older adults should be monitored closely for signs of lithium toxicity even when levels are within the normal range.

Patient Responsibilities

- Discuss potential benefits and side-effects of treatment with the Specialist and GP and share any concerns that they have in relation to their treatment.
- Report any side-effects to the Specialist or GP.
- Patients should be advised to report signs and symptoms of lithium toxicity (To report immediately pronounced tremor, blurred vision, vomiting, diarrhoea, disorientation and unsteadiness), hypothyroidism, renal dysfunction (including polyuria and polydipsia), and benign intracranial hypertension (persistent headache and visual disturbance) to the Specialist or GP.
- To inform all healthcare professionals that they are taking lithium e.g. GP’s, A&E clinicians, community pharmacists.
- To participate in the monitoring of therapy (including having blood tests carried out at agreed intervals) and assessment of outcomes, to assist health professionals to provide safe, appropriate treatment.
- To inform GP/Specialist of all medicines (including OTC preparations and alternative/complementary medicines) that the patient is currently taking.
- To maintain adequate fluid intake and avoid dietary changes which reduce or increase sodium intake. This is particularly important during periods of warm weather and on travelling to countries where the temperature may be very high and also where there is a significant change in physical activity.
Where there is a disagreement around prescribing lithium for justified reasons, which cannot be resolved satisfactorily, prescribing responsibility will remain with the Secondary Care Mental Health Service

Notes for Community Pharmacists

- Community pharmacists are advised to verbally check that a patient has had a recent lithium blood test taken and the results checked by the GP / Specialist before dispensing a prescription for lithium.
- Community pharmacists should contact the prescribing clinician if they have any doubt regarding the dosage prescribed or any concerns relating to the blood test monitoring and blood test results.
- Community pharmacists are asked to check that the patient is receiving the correct brand of lithium.

PREScribing COSTS

(Based on Drug Tariff and Chemist and Druggist May 2014). For most up to date prices click on link - http://www.ppa.org.uk/ppa/edt_intro.htm

PRIADEL® (Lithium Carbonate MR Tabs 200mg): £2.30 (100), 400mg: £3.35 (100)
CAMCOLIT® 250 (Lithium Carbonate Tabs 250mg): £3.22 (100),
CAMCOLIT® 400 (Lithium Carbonate MR Tabs 400mg): £4.30 (100)
LISKONUM® (Lithium Carbonate MR Tabs 450mg): £2.88 (60)
Li-LIQUID® (Lithium Citrate Liquid 509mg/5ml): £5.79 (150ml), 1.018g/5ml: £11.58
PRIADEL® LIQUID (Lithium Citrate Liquid 520mg/5ml): £5.61 (150ml)

NB. Lithium must always be prescribed by brand and formulation. The brands are not interchangeable and preparations can also vary widely in bioavailability (tablets and liquid). See current eBNF for further detail (http://www.evidence.nhs.uk/formulary/bnf/current)

References (all accessed May 2014):

1. BNF, (http://www.evidence.nhs.uk/formulary/bnf/current)


4. GMS QoF (http://bma.org.uk/working-for-change/negotiating-for-the-profession/bma-general-practitioners-committee/general-practice-contract/qof-changes-2014)


For contact details for Secondary Care Mental Health Services – please refer to Clinic Letter
Appendix A: LITHIUM drug fact sheet

The fact sheet is based on information from the current BNF (http://www.evidence.nhs.uk/formulary/bnf/current) and Priadel® Summary of Product Characteristics (SPC) (http://www.medicines.org.uk/emc/medicine/25500/SPC/Priadel+400mg+prolonged+release+tablets.), both accessed May 2014. For up to date information please use the web links outlined above. The Priadel® SPC has been used as this is the preparation preferred by SEPT.

Lithium must always be prescribed by brand and formulation. The brands are not interchangeable and preparations can also vary widely in bioavailability (tablets and liquid). For more detailed information on other brands of lithium, please access the Electronic Medicines Compendium at http://www.medicines.org.uk/emc/

Indication:
Prophylaxis and treatment of mania, hypomania and depression in bipolar disorder (manic-depressive disorder), and in the prophylaxis and treatment of recurrent unipolar depression. Lithium is also used as concomitant therapy with antidepressant medication in patients who have had an incomplete response to treatment for acute bipolar depression and to augment other antidepressants in patients with treatment-resistant depression [unlicensed indication]. It is also licensed for the treatment of aggressive or self-harming behaviour.

Dosage and Administration
- The dose will depend on the preparation used and target serum drug levels. Newly initiated patients will be prescribed and supplied Priadel®. Preparations vary widely in bioavailability.
- In patients with any degree of renal impairment lithium should either be avoided if possible or the dose should be reduced using serum levels to determine dose.

Precautions and Warnings
- If the lithium level is above 1.5 mmol/litre serious side effects may develop which may be fatal. These include tremor, drowsiness and lethargy, ataxia, dysarthria, nystagmus, renal impairment and convulsions. If these occur the lithium should be stopped, steps taken to reverse lithium toxicity (by Secondary Care) and not restarted until the level is within the normal range. A dosage adjustment may be necessary. If the lithium level is above 1.0 mmol/litre, a dosage adjustment may be necessary. Check with the Secondary Care Mental Health Service before making the adjustment.
- Lithium should be avoided in pregnancy, but if a patient stabilised on lithium becomes pregnant the Secondary Care Mental Health Services should be contacted.
- If a patient is or has recently suffered from diarrhoea or vomiting (especially of sweating profusely) an additional blood test should be taken to ensure that the levels are maintained within the normal range.
- Beware of use in patients with Psoriasis or Epilepsy.
- Beware of interactions with other medicines (including drugs that prolong the QT interval or lower the seizure threshold).
- Regular renal, cardiac and thyroid function tests are necessary with lithium
- Once a patient is stabilised on lithium, a level is required every 3 months.
- Elderly patients.
- Avoid abrupt withdrawal.

**Contra-indications**
- Hypersensitivity to lithium or to any of the excipients.
- Cardiac disease.
- Cardiac insufficiency.
- Severe renal impairment.
- Untreated hypothyroidism.
- Breast-feeding.
- Patients with low body sodium levels, including for example dehydrated patients or those on low sodium diets.
- Addison's disease.
- Brugada syndrome or family history of Brugada syndrome

**Significant Interactions are listed, for full eBNF list go to**
http://www.evidence.nhs.uk/formulary/bnf/current/a1-interactions/list-of-drug-interactions/lithium

Lithium has the following interaction information:

- **ACE Inhibitors**
  - Excretion of lithium reduced by ACE inhibitors (increased plasma concentration)

- **Acetazolamide**
  - Excretion of lithium increased by acetazolamide

- **Amiodarone**
  - Avoidance of lithium advised by manufacturer of amiodarone (risk of ventricular arrhythmias)

- **Angiotensin-II Receptor Antagonists**
  - Excretion of lithium reduced by angiotensin-II receptor antagonists (increased plasma concentration)

- **Antidepressants, SSRI**
  - Increased risk of CNS effects when lithium given with SSRIs (lithium toxicity reported)

- **Arsenic Trioxide**
  - Increased risk of ventricular arrhythmias when lithium given with arsenic trioxide

Note: Amiodarone has a long half-life; there is a potential for drug interactions to occur for several weeks (or even months) after treatment with it has been stopped.

Note: see also Dapoxetine
possible increased risk of serotonergic effects when lithium given with dapoxetine
(manufacturer of dapoxetine advises lithium should not be started until 1 week after stopping dapoxetine, avoid dapoxetine for 2 weeks after stopping lithium)

**Dapoxetine**

excretion of lithium reduced by loop diuretics (increased plasma concentration and risk of toxicity)—loop diuretics safer than thiazides

**Diuretics, Loop**

excretion of lithium reduced by potassium-sparing diuretics and aldosterone antagonists (increased plasma concentration and risk of toxicity)

**Diuretics, Potassium-sparing and Aldosterone Antagonists**

excretion of lithium reduced by thiazides and related diuretics (increased plasma concentration and risk of toxicity)—loop diuretics safer than thiazides

**Diuretics, Thiazide and related**

excretion of lithium reduced by ketorolac (increased risk of toxicity)—avoid concomitant use

**Ketorolac**

neurotoxicity may occur when lithium given with methyldopa without increased plasma concentration of lithium

**Methyldopa**

excretion of lithium reduced by NSAIDs (increased risk of toxicity)

**NSAIDs**

Note: See also Aspirin. Interactions do not generally apply to topical NSAIDs
Risperidone

increased risk of extrapyramidal side-effects and possibly neurotoxicity when lithium given with risperidone

Patients taking lithium should be warned not to take OTC NSAIDs

Lithium toxicity is made worse by sodium depletion

Side effects

Gastro-intestinal disturbances, gastritis, weight changes, anorexia, oedema, benign intracranial hypertension, Raynaud's phenomena, ECG changes (including arrhythmia, bradycardia, sinus node dysfunction, QT interval prolongation, AV block), cardiomyopathy, hypersalivation, dry mouth, cognitive impairment, hallucinations, extrapyramidal side-effects, fine tremor, speech disorder, vertigo, memory loss, encephalopathy, dysgeusia, malaise, myasthenia gravis, peripheral neuropathy, kidney changes, renal impairment, polydipsia, nephrotic syndrome, nephrogenic diabetes insipidus; electrolyte imbalance, sexual dysfunction; thyroid changes (including hyperthyroidism, hypothyroidism, euthyroid goitre); hyperparathyroidism, parathyroid adenoma, leucocytosis, arthralgia, myalgia, nystagmus, alopecia, psoriasis exacerbation, acneiform eruptions and other skin disorders;

Signs of intoxication require withdrawal of treatment and include increasing gastro-intestinal disturbances (vomiting, diarrhoea), visual disturbances, polyuria, muscle weakness, fine tremor increasing to coarse tremor, CNS disturbances (confusion and drowsiness increasing to lack of coordination, restlessness, stupor); abnormal reflexes, myoclonus, incontinence, hypernatraemia;

With severe overdosage (serum-lithium concentration above 2 mmol/litre) seizures, cardiac arrhythmias (including sino-atrial block, bradycardia and first-degree heart block), blood pressure changes, circulatory failure, renal failure, coma and sudden death reported

Effects on ability to drive and operate machinery

Lithium may cause disturbances of the CNS. Since lithium may slow reaction time, and considering the adverse reactions profile of lithium, patients should be warned of the possible hazards when driving or operating machinery.

For full information consult the latest Summary of Product Characteristics and the eBNF