Guidelines for the management of patients on lithium
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction and scope</td>
<td>3</td>
</tr>
<tr>
<td>Lithium treatment plan</td>
<td>3</td>
</tr>
<tr>
<td>Minimum monitoring requirements</td>
<td>4</td>
</tr>
<tr>
<td>Side Effects</td>
<td>5</td>
</tr>
<tr>
<td>Drug interactions</td>
<td>6</td>
</tr>
<tr>
<td>Managing lithium levels</td>
<td>6</td>
</tr>
<tr>
<td>Counselling points for patients</td>
<td>7</td>
</tr>
<tr>
<td>Authorship</td>
<td>9</td>
</tr>
<tr>
<td>NHS Lothian lithium treatment plan</td>
<td>10</td>
</tr>
</tbody>
</table>
INTRODUCTION
These guidelines have been developed by a multidisciplinary team (see page 8) to ensure a safe, effective and consistent approach to the management of patients receiving lithium.

SCOPE OF GUIDELINE
These guidelines include advice to prescribers and other healthcare professionals on managing patients on lithium, e.g. monitoring requirements, managing lithium levels and also counselling points for patients, (backed up by a patient information pack which is available in hard copy see page 4 for further details.)

LITHIUM TREATMENT PLAN
To enhance communication between primary and secondary care a Lithium Treatment Plan has also been developed (see page 9). The Treatment Plan should be completed by the hospital doctor on discharge, and also at appropriate outpatient reviews e.g. on initiation of treatment, dose alteration and side effect investigation.

A copy of this plan should be sent to the patients GP or psychiatrist. The plan can be printed off and sent as a hard copy or emailed electronically to the relevant prescriber. A further copy should be uploaded onto the patients’ records on SCistore.

Practice Point 1:
The hospital doctor should complete the following patient specific information in the treatment plan:

Treatment
• indication
• dose regimen
• brand name and formulation of lithium preparation

Monitoring
• proposed therapeutic range
• last recorded level
• when next level due

The hospital doctor should also indicate by ticking the appropriate box on the Treatment Plan:
• who will be responsible for future physical monitoring of the patient (e.g. sampling of lithium levels, U&Es, weight etc.)
• frequency of lithium monitoring (typically 3 monthly)
MINIMUM MONITORING REQUIREMENTS FOR ESTABLISHED LITHIUM TREATMENT

It is important to monitor regularly:

- How lithium is being prescribed (e.g. the brand used, desired therapeutic range, concomitant medication)
- How it is taken by the patient (e.g. compliance with dosing regimen, use of over the counter preparations, in particular ibuprofen)

Practice Point 2:

- Different preparations of lithium may vary widely in bioavailability i.e. the amount absorbed into the blood.
- Check that patient continues on same brand of lithium. (All prescriptions for lithium should be include the proprietary form, i.e. brand name)
- If changing between brands or between tablets and liquid, more frequent monitoring may be required initially as the change may result in alterations in lithium levels
- Take particular care when changing from tablets to liquid or vice versa:

  Lithium carbonate tablet 200mg (Li $^+5.4 \text{ mmol}$) is approx. equal to Lithium citrate liquid 5ml (Li $^+5.4 \text{ mmol}$) i.e.

  Lithium carbonate tablet 200mg does not equal Lithium citrate liquid 200mg

Practice Point 3:

Blood lithium levels should be monitored typically 3 monthly:

- Sample should be taken at 12 hours post dose
- If twice daily liquid prescribed, a 12 hour post dose sample should be taken, i.e. before next dose administered
- The time interval should be the same at each measurement
- If out-with these times, this should be stated clearly on the request form

Additional monitoring every 6 months:

- U&E’s
- serum Ca$^{2+}$
- serum creatinine and calculated creatinine clearance.
- T4 /TSH

Practice Point 4:

Certain patients may require more frequent monitoring

- if clinical indications arise e.g. pregnancy
- "high risk" patients e.g.
  - over 65 years
  - those on interacting medicines (see p.6)
  - those with, or at risk of, renal / thyroid / cardiac disease
- if further concerns regarding renal function, contact renal physicians

Practice Point 5:

Levels should be checked if there is a concomitant physical illness

- Any patient presenting with acute physical illness who is known to regularly take Lithium must have a level checked.
- Lithium levels can fluctuate unpredictably during the course of many physical illnesses and should be checked routinely.
Practice Point 6:
Levels should be checked prior to issue of prescription and medication, where possible
- Before dispensing of lithium pharmacists should check with the patient if they have had a lithium level taken within the previous 3 months
- If levels have not been checked within the previous 3 months the patient should be informed to contact their prescriber and arrange for a level to be taken as soon as possible

SIDE EFFECTS
It is important to enquire about side effects and to consider how these might be best managed. Side effects may be short term and are usually dose dependent. They can often be prevented or relieved by a moderate reduction in dose.

Common side effects of lithium include:
- GI disturbances (e.g. nausea, diarrhoea, dry mouth)
- weight gain
- oedema
- fine tremor
- nocturia
- polyuria
- polydipsia
- hypothyroidism

Some side effects can be expected but it is vital to be alert for symptoms suggestive of lithium toxicity (see practice point 7 below).

Practice Point 7:
Signs of lithium toxicity include:
- blurred vision
- muscle weakness
- drowsiness
- coarse tremor
- dysarthria (slurred speech)
- ataxia (unsteady gait, problems with balance, falling over)
- confusion
- convulsions
- nausea/ vomiting
- ECG changes

Remember that toxicity can still occur when levels are within the normal therapeutic range e.g. in elderly patients or in patients with concomitant physical illness.

Practice Point 8:
If patient exhibits signs of lithium toxicity (see practice point 7 above)

STOP LITHIUM IMMEDIATELY
- Check lithium levels, serum creatinine, U&E’s
- Refer to hospital if clinical condition warrants
- Seek advice from psychiatrist for re-initiation of lithium
**DRUG INTERACTIONS**
Some medicines may result in increased lithium levels and increase risk of toxicity. These include:
- Diuretics (mainly thiazides)
- NSAIDs (e.g. ibuprofen)
- ACE inhibitors
- SSRIs (e.g. fluoxetine) and other psychotropic medicines
- Theophylline

Refer to Appendix 1 in British National Formulary for further details and full list of interacting medication.

**MANAGING LITHIUM LEVELS**

Always check that the timing of the blood sample has been appropriate. Current reported laboratory reference range for lithium is 0.4mmol/L- 1.0mmol/L. It should be noted however that some patients may be appropriately managed at levels outwith the reference range i.e. lower levels for patients >65 years old (0.4mmol/L- 0.8mmol/L) or concomitant treatment for depression.

**If the level is low (typically < 0.6 mmol/l)**
- if the patient is well and the levels are consistently low but within the desired specified range for that patient, do **not alter dose**
- if the patient is **unwell** and pattern of levels have been bordering on the lower end of the range:
  - assess compliance
  - increase the dose if appropriate
  - recheck the level in 5 days
- if the low level is inconsistent with the trend, i.e. a one off:
  - assess compliance
  - consider other factors, e.g. drug interactions, excess intake of fluid, brand change
  - recheck the level

**If the level is within therapeutic range (typically 0.6-1.0 mmol/l)**
- if the patient is well and tolerating lithium, **do nothing**!
- if the patient is well but complaining of side effects, e.g. polyuria, polydipsia, **reduce the dose** and check:
  - if change in diet e.g. dietary salt restriction or crash diets can cause blood lithium to rise
  - initiation of interacting medicines by doctor or use of OTC products.
- if the patient is clinically unwell, liaise further with CPN / psychiatrist

**If the level is high (typically > 1.0 mmol/l), but with no signs of toxicity**
- if there is an explanation for the high level e.g. dehydration, timing of level, interacting medicines, brand change, correct where possible and recheck level
- if the level is part of a pattern of levels which have bordered on being too high:
  - decrease the dose
  - encourage fluids
  - recheck the level in 5 days
- if there is no clear explanation for high level:
  - recheck level
  - investigate renal function

Refer to practice points 7 & 8 for advice on lithium toxicity
COUNSELLING POINTS FOR PATIENTS ON LITHIUM

An NPSA Lithium Therapy pack should be given to patients on initiation of therapy. Hard copies of this pack have been distributed to GP practices and relevant hospital outpatient departments and clinics. Further packs are available from Pharmacy Department, Royal Edinburgh Hospital.

People taking lithium need to know:

1. Name of drug
Reinforce importance of continuing on same brand of lithium and, if possible, attend same community pharmacy

2. What the drug is used for
Used mainly as a mood stabiliser to help normalise or even out mood swings. It also prevents mood swings in the future. It can also be used for other reasons, e.g. to increase the effect of antidepressants / other medication when they are not working enough on their own

3. Dosage/missed dose
• reinforce importance of taking:
  - as directed
  - at same time(s) each day
  - with glass of water
• important not to crush tablets as this will affect the sustained release preparations
• if a dose is missed, take as soon as possible as long as it is only a few hours after the usual time. Advise that they should **not** take double the dose the following day

4. Blood tests
Advise patient that:
• it is essential to have regular blood tests to check lithium levels and that initially they will be checked weekly or fortnightly. Once levels of lithium in the blood are steady, they will be checked regularly (typically 3 monthly) usually 12 hours after the last dose
• they will have blood tests at least every 6 months to check on kidney and thyroid function

5. Other medicines
Advise patient that:
• some medicines whether prescribed or bought from a pharmacy may result in increased lithium levels and increase the risk of toxicity/side effects, e.g. water tablets (mainly thiazides), anti-inflammatories (e.g. ibuprofen), sodium bicarbonate (baking powder) and theophylline
• they should always check with their doctor or pharmacist before starting any new medication

6. Salt/fluid intake
Advise patient that:
• the amount of salt in the diet can change the level of lithium in the blood and to avoid changing from a high to low sodium diet and vice versa
• It is important to maintain a good fluid intake, particularly in situations where there is a risk of dehydration, e.g. long distance air travel, sickness, diarrhoea and hot weather
• they should avoid crash diets
7. Alcohol intake
Advise patients that:
- alcohol and lithium may cause drowsiness and can also change the level of lithium in the blood
- they should avoid alcohol in the first week, then drink in moderation, i.e. no more than 1-2 units per day

8. Pregnancy & Breastfeeding
Advise patients that they should:
- seek medical advice as soon as possible if they are taking lithium and are pregnant
- seek medical advice before stopping contraception if they are planning to become pregnant
- seek medical advice if they are planning to breastfeed following pregnancy

9. Compliance
Advise patient that:
- lithium is not addictive
- it should not be stopped suddenly as original symptoms may return
- it may take several weeks or months to work
- lithium will normally have to be taken for at least 2-3 years
- they should carry a Lithium Alert Card at all times

AUTHORSHIP
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Mrs M van-de-l’Isle, (Chair) Lead Pharmacist, Mental Health, REH
### Patient Details
(affix addressograph label if available)

<table>
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<tr>
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<th>CHI number:</th>
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### Treatment

| Indication: | |
|-------------| |

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<th>Dose:</th>
<th>Frequency:</th>
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<tr>
<td>_____mg</td>
<td>_______</td>
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| Formulation: | |
|--------------| |
| Tablets m/r | Liquid |

| Brand: | |
|--------| |
| Priadel® | Camcolit® | Liskonum® | Other |

(Other please state____________________)

### Monitoring

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<th>GP</th>
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| Frequency: | |
|------------| |
| Weekly | Fortnightly | Monthly | 3-Monthly |

| Therapeutic range: | |
|-------------------| |
| ________mmol/L | |

| Last recorded level: | |
|----------------------| |
| ________mmol/L | taken on dd/mm/yy |

| Level next due: | |
|----------------| |
| dd/mm/yy | |

### Completed by:

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<th>Sign</th>
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| Name: | |
|-------| |