One + all | we care

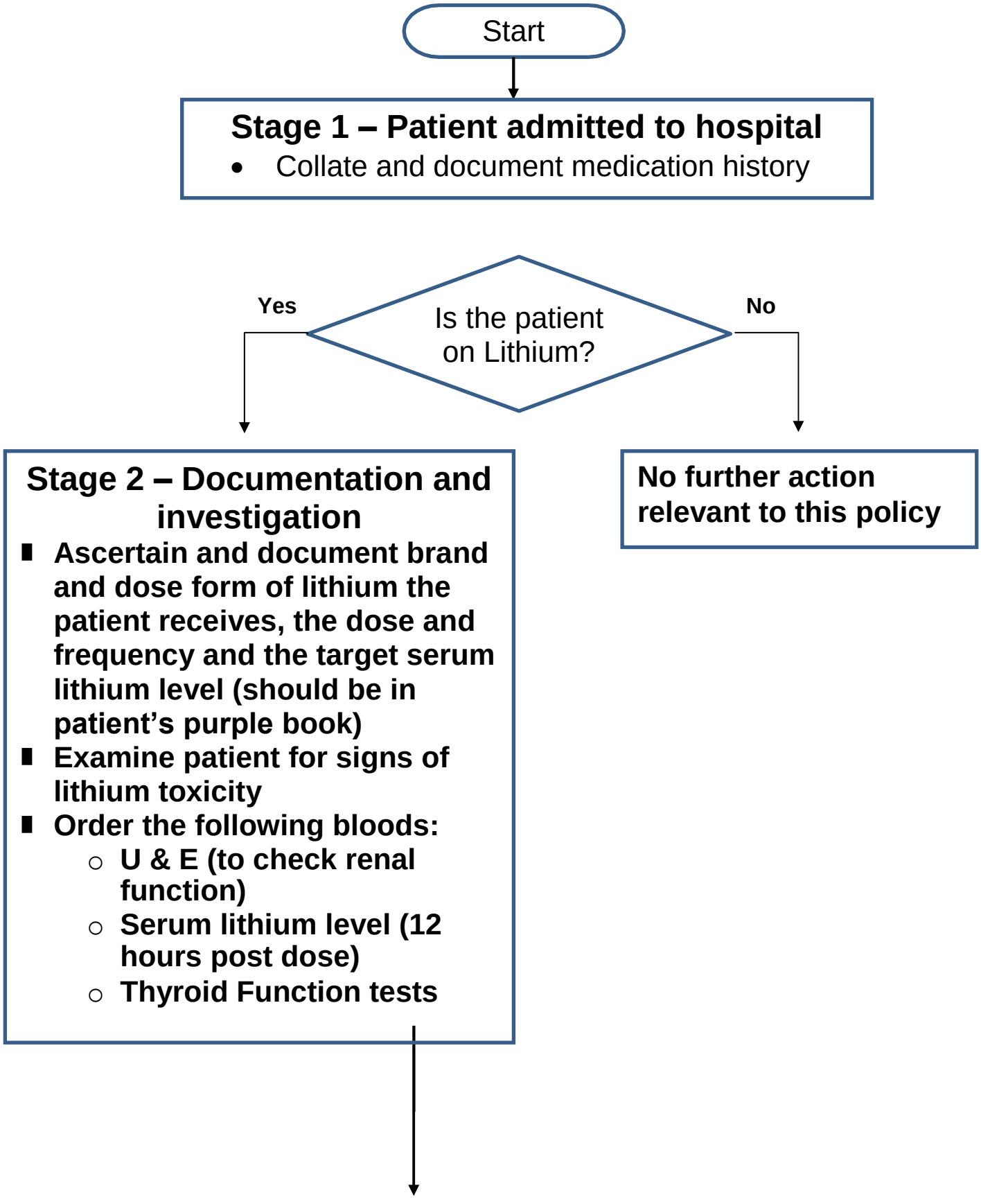
Royal Cornwall Hospitals NHS Trust

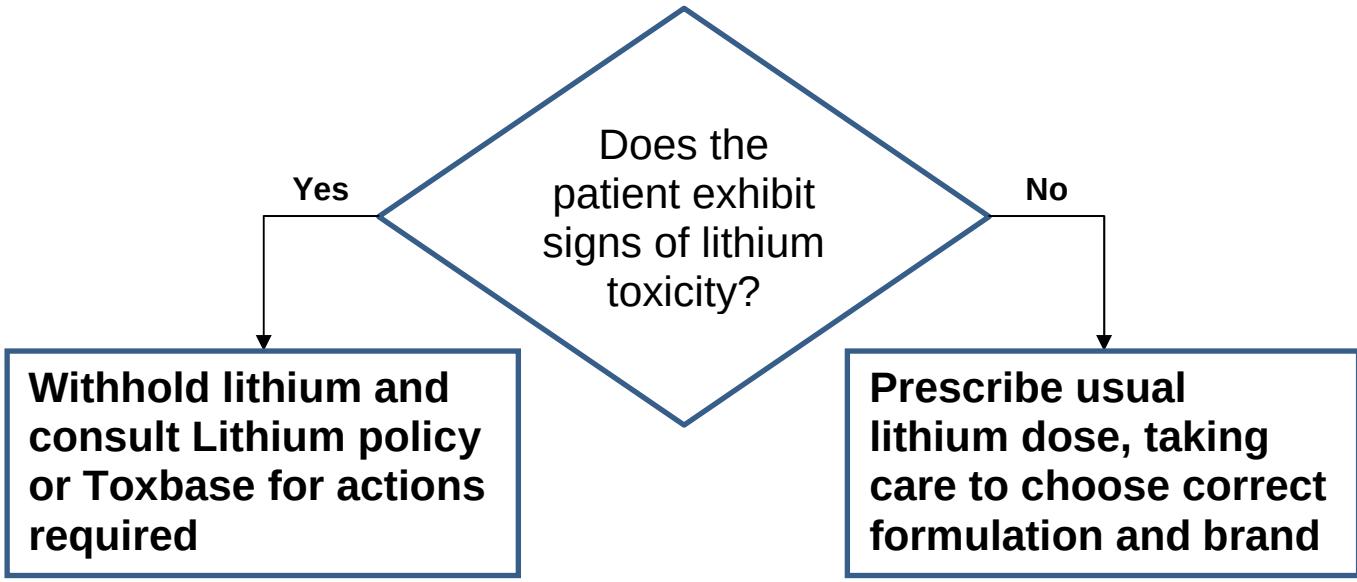
Lithium Policy

V3.0

July 2019

Summary


Start
Stage 1 – Patient admitted to hospital
• Collate and document medication history
Is the patient on Lithium?
Yes
No
Stage 2 – Documentation and investigation
▮ Ascertain and document brand and dose form of lithium the patient receives, the dose and frequency and the target serum lithium level (should be in patient's purple book)
▮ Examine patient for signs of lithium toxicity
▮ Order the following bloods:
○ U & E (to check renal function)
○ Serum lithium level (12 hours post dose)
○ Thyroid Function tests
No further action relevant to this policy


Does the patient exhibit signs of lithium toxicity?
Yes
No
Withhold lithium and consult Lithium policy or Toxbase for actions required
Prescribe usual lithium dose, taking care to choose correct formulation and brand

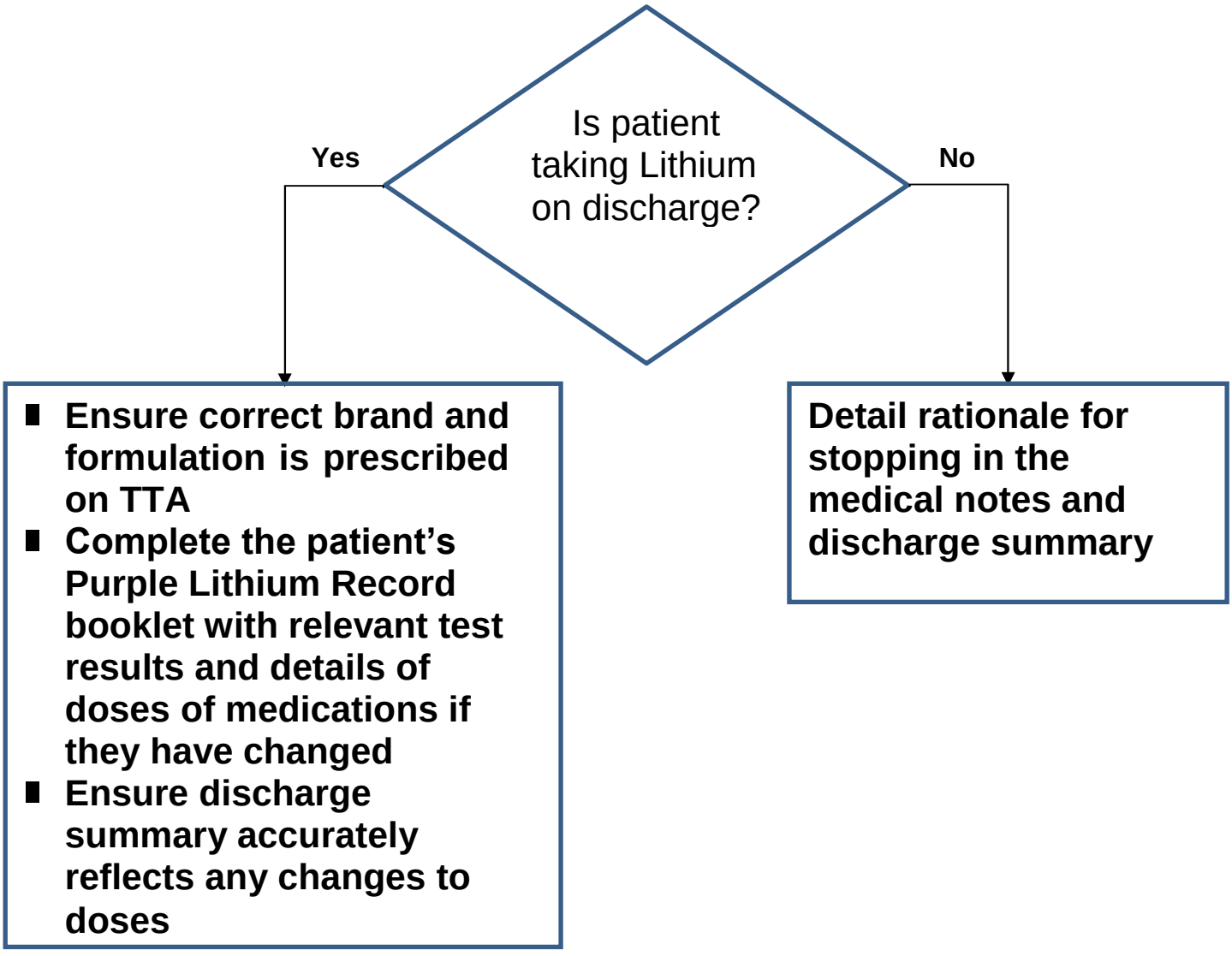

Is patient taking Lithium on discharge?
Yes
No
Ensure correct brand and formulation is prescribed on TTA
Complete the patient's Purple Lithium Record booklet with relevant test results and details of doses of medications if they have changed
Ensure discharge summary accurately reflects any changes to doses
Detail rationale for stopping in the medical notes and discharge summary

Table of Contents

1. Introduction

1.1. This policy has been developed to outline the actions of staff that are necessary to ensure the Trust is compliant with the NPSA PSA005 “Safer Lithium Therapy” alert.

1.2. This version supersedes any previous versions of this document.

1.3 Data Protection Act 2018 (General Data Protection Regulation – GDPR) Legislation

The DPA18 covers how the Trust obtains, hold, record, use and store all personal and special category (e.g. Health) information in a secure and confidential manner. This Act covers all data and information whether held electronically or on paper and extends to databases, videos and other automated media about living individuals including but not limited to Human Resources and payroll records, medical records, other manual files, microfilm/fiche, pathology results, images and other sensitive data.

DPA18 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the DPA18 please see the information use framework policy’, or contact the Information Governance Team rch-tr.infogov@nhs.net

2. Purpose of this Policy/Procedure

To provide clear actions that need to be taken by medical, nursing and pharmacy staff when a patient taking lithium is admitted to RCHT. Adherence to the policy ensures that RCHT is compliant with the NPSA PSA005 alert “Safer Lithium Therapy”.

3. Scope

This policy applies to all medical, nursing and pharmacy staff involved in the care of inpatients taking lithium therapy. It covers all activities relating to the prescribing, administration and monitoring of lithium.

4. Definitions / Glossary

NPSA – National Patient Safety Agency; TTO – Hospital discharge prescription; Toxbase – Online drug toxicity database; BMI – Body Mass Index

5. Ownership and Responsibilities

5.1. This policy is developed on behalf of the Medication Practice Committee (MPC). All clinical staff (medical, nursing and pharmacy) involved with the care of a patient on lithium therapy are responsible for ensuring that the actions set out in section 5 of this policy are adhered to.

5.2. The monitoring of the implementation and compliance with this policy will be

the responsibility of the MPC via the pharmacy team and the Medication Safety Group.

6. Standards and Practice

6.1 Pharmacy Actions

Action	Rationale	When	Who by
Recognise patients admitted taking lithium during the medicines reconciliation process, make an accurate record of drug form, brand and dosage prior to admission and ensure that it is prescribed, if appropriate	Ensure that all necessary actions are commenced on admission, that an accurate record of the patient's therapy is made and that the prescription is continued if appropriate	Within 24 hours of admission (during normal pharmacy opening hours)	Pharmacy Technicians Clinical Pharmacists
Check to see if necessary lithium monitoring is carried out and prompt medical staff to carry it out if it has not	To ensure that NICE monitoring guidelines are complied with	Within 24 hours of admission (during normal pharmacy opening hours)	Clinical Pharmacists
Ensure recent lithium level in line with monitoring guidelines (see below) has been taken before dispensing lithium	Will ensure that lithium will only be dispensed if it is safe to do so	On discharge/when processing TTOs/when a non-stock request for lithium preparations is received	Clinical Pharmacists
Ensure patient has a Lithium Therapy Record Book on discharge. A new booklet should be supplied if the previous one is unavailable	Will ensure that the patient has accurate information about their blood levels and clinical tests and that this information is accurately conveyed to other healthcare providers	On discharge/when processing TTOs	Clinical Pharmacists

Ensure all relevant tests and dosing information have been completed in the Lithium Therapy Record Book	Will ensure that the patient has accurate information about their blood levels and clinical tests and that this information is accurately conveyed to other healthcare providers	On discharge/when processing TTOs	Clinical Pharmacists
Consider all interacting medicines prescribed to patients on lithium and advise the medical team on necessary dose adjustments/monitoring	To reduce the risk of patients prescribed lithium experiencing adverse effects or a lithium level outside of their target range	Throughout inpatient stay	Clinical pharmacists
Document any changes to lithium dose or interacting medicine prescribed during admission in the Discharge Medicines Reconciliation (DMR)	Ensures that clear information on lithium therapy and any changes are communicated to the patient's primary care provider	Throughout inpatient stay and on discharge	Clinical Pharmacists
Maintain a stock of Lithium Therapy Record Books in the pharmacy	To ensure that all patients that require a new book can be supplied with one	Ongoing	Procu reme nt depar tment
Supply community hospitals with Lithium Therapy Record Books	To provide community hospitals a cost effective way of obtaining Lithium Therapy Record Books	Ongoing	Dispensary staff

6.2 Medical Team Actions

Action	**Rationale**	**When**	**Who by**
Ascertain the target lithium level on admission (from Lithium Therapy Record Book or GP/mental health service)	Ensures that a record of target range is recorded to be able to interpret monitoring	On admission	Admitting doctor

Carry out lithium monitoring on admission (see **'Lithium Monitoring'** below)	Ensures that necessary monitoring has been carried out	On admission	Admitting doctor
Prescribe usual lithium dose (if no signs of lithium toxicity).	Ensures the prescription is continued if	On admission	Admitting doctor
Action	**Rationale**	**When**	**Who by**
Choose the correct formulation and brand on the electronic prescribing system (EPMA/JAC). Different brands and preparations can vary widely in bioavailability	appropriate		
Refer to **'Interactions'** section (see below) when considering initiating a new medicine or altering a dose of an existing medicine	Reduces the risk of changes to medications resulting in an adverse reaction or lithium level going out of intended range	Throughout inpatient stay	All prescribers
Carry out appropriate lithium monitoring (or communicate necessary monitoring to primary care practitioner as necessary) if lithium dose changed or interacting medicine prescribed. See **'Lithium Monitoring'** section below	Ensure lithium levels are maintained in the intended range	Throughout inpatient stay	Medical/surgical team
Monitor patients on lithium for signs of lithium toxicity and respond appropriately (see **'Lithium Toxicity'** section below)	Ensure lithium toxicity is recognised and treated appropriately.	Throughout inpatient stay	Medical/surgical team

Ensure lithium is prescribed on the TTA, including the correct brand and indicate rationale for any changes since admission in the text of the discharge letter	Ensure that clear information on lithium therapy and any changes are communicated to the patient's primary care provider	At discharge	Discharging doctor
Do not initiate patients on lithium. This should be done by the patient's primary care practitioner using the	Ensure lithium is initiated in a safe and effective way	Throughout inpatient stay	Medical/surgical team
Action	**Rationale**	**When**	**Who by**
shared care guideline on the recommendation of a consultant psychiatrist			

6.3 Nursing team actions

Action	**Rationale**	**When**	**Who by**
Ensure patient has a Lithium Therapy Record Book, ideally the one they were using before admission to hospital	To ensure continuity of information	On admission	Nurse looking after the patient
Monitor patients for signs of lithium toxicity (see below)	To ensure lithium toxicity is recognised and acted upon in an expedient manner	Throughout inpatient stay	Nurse looking after the patient
Send Lithium Therapy Record Book to pharmacy with TTO	To enable pharmacy to ensure the record is completed fully	At discharge	Nurse looking after the patient

6.4 Lithium monitoring

The dose of lithium is adjusted to achieve a lithium concentration that is usually between
0.4 – 1.0 mmol/litre, but target levels are very patient specific and may fall outside this range. Ascertain the target lithium level from the patient's purple Lithium Therapy Record Book or GP/mental health service.

Parameter	When	Rationale
Serum Lithium level *Take at least 12 hours after the last dose.*	▮ On admission to hospital, ▮ Weekly after each dose change, addition of interacting medicine, following significant change in sodium or fluid intake, or on development of intercurrent illness, until the level is stable within the therapeutic range for that patient. Then monthly, then if stable, at least every 3 months thereafter. ▮ After the first year, measure plasma lithium levels every 6 months, or every 3 months for people in any of the following groups: older people; people taking drugs that interact with lithium; people who are at risk of impaired renal or thyroid function, raised calcium levels or other complications, people who have poor symptom control; people with poor adherence people whose last plasma lithium level was 0.8 mmol per litre or higher	Lithium has a narrow therapeutic range so has a high potential for toxicity. Safe and effective use of lithium relies on careful monitoring of serum levels. If the concentration of lithium in the blood is too high, symptoms of lithium toxicity can occur (see **'Lithium toxicity'** section) Lithium levels can be affected by changes in fluid balance and by interacting medication (see 'Interactions' section)
Renal Function	▮ On admission to hospital and 6 monthly	Potential for toxicity is increased in renal impairment due to accumulation of lithium lithium can cause diabetes insipidus or more rarely reduce eGFR
Thyroid function	▮ On admission to hospital and 6 monthly	Lithium can induce hypothyroidism
BMI	▮ 6 monthly	Lithium can cause weight gain

6.5 Lithium toxicity

- If lithium toxicity is suspected, Toxbase or other poisons information service should be consulted for signs and symptoms as well as treatment options.

- Signs of lithium toxicity may be present even at a “therapeutic” lithium level. Raised lithium levels or signs of toxicity require lithium to be reduced or stopped, at least until blood levels fall to therapeutic range and the cause of lithium toxicity has been investigated.

- Risk factors for toxicity often involve change in sodium levels or how the body handles sodium.

- Worsening renal function increases the risk of developing lithium toxicity therefore lithium levels should be checked in patients with deteriorating renal function.

As a general guide:-
Serum level 1.3mmol/l or above: blurred vision, muscle weakness, ataxia, increasing GI disturbances (anorexia, nausea, diarrhoea), drowsiness, confusion, coarse tremor, dysarthria, poor co-ordination, muscle twitching. Fine tremor is a normal side effect, but a coarse tremor may indicate toxicity.

Action: Withhold lithium, advise patient to drink water, daily lithium level.
Serum level 2.0mmol/l or above: **severe lithium toxicity** - hyperreflexia or hyperextension of limbs, convulsions, disorientation, syncope, renal failure, circulatory failure, coma.
Action: Stop lithium immediately and follow Toxbase treatment option

Interactions

(Refer to the BNF and the Summary of Product Characteristics (SPCs) online (www.medicines.org.uk) for further information regarding lithium drug interactions, contraindications and cautions).
Common/Significant Lithium interactions with other medications

Drug	**Nature of interaction**
ACE Inhibitors	Excretion of lithium reduced by ACE inhibitors, resulting in increased plasma concentration and increased risk of toxicity
Angiotensin-II Receptor Antagonists	Excretion of lithium reduced by angiotensin-II receptor antagonists, resulting in increased plasma concentration and increased risk of toxicity
Diuretics, Loop	Excretion of lithium reduced by loop diuretics, resulting in increased plasma concentration and risk of toxicity. However, loop diuretics are considered safer than thiazides
Diuretics, Potassium-sparing and Aldosterone Antagonists	Excretion of lithium reduced by potassium-sparing diuretics and aldosterone antagonists resulting in increased plasma concentration and risk of toxicity
Diuretics, Thiazide and Thiazide-related	Excretion of lithium reduced by thiazides and related diuretics resulting in increased plasma concentration and risk of toxicity
NSAIDs (Non-steroidal anti-inflammatory drugs)	Excretion of lithium reduced by NSAIDs resulting in increased plasma levels and increased risk of toxicity

Lithium levels may also be increased by:-

- Dehydration, sweating, low salt intake
- Stopping concurrent theophylline Lithium levels can be decreased
- By excess fluid intake, concomitant acetazolamide, or adding theophylline.
- Sodium bicarbonate containing products

Risk of serotonin syndrome with other serotonergics eg SSRIs (although this can be a therapeutic combination in resistant depression), triptans, certain opioids e.g. tramadol, pethidine.

Serotonin syndrome is characterised by restlessness, sweating, shivering, tremor, myoclonus, confusion and can be mild or potentially fatal. It resolves rapidly on stopping serotonergic drugs.

Risk of neurotoxicity with concurrent diltiazem, verapamil, methyldopa, carbamazepine, phenytoin, antipsychotics or SSRIs. Again, lithium + antidepressant or lithium + antipsychotic is usually a synergistic therapeutic combination, but problems can occur rarely.

7. Dissemination and Implementation

7.1 The document is available on the document library. Significant updates will be communicated via Trustwide email.

7.2 Implementation of the policy will be via Trustwide communication and supported by appropriate training for the relevant members of staff.

8. Monitoring compliance and effectiveness

Element to be monitored	All elements
Lead	Medication Safety Lead Pharmacist
Tool	Periodical clinical audit
Frequency	The lithium policy will be audited every 2 years
Reporting arrangements	The completed report will be discussed at the Pharmacy Audit Group meeting and sent to The Medication Practice Committee.
Acting on recommendations and Lead(s)	Recommendations will be acted on by the Medication Safety Lead Pharmacist and the Pharmacy Audit Group.
Change in practice and lessons to be shared	Required changes to practice will be identified and actioned within one month. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders

9. Updating and Review

This procedure will be updated as necessary in response to any future publications, clinical incidents or by the review date (3 years from publication).

10. Equality and Diversity

10.1 This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the 'Equality, Diversity & Human Rights Policy' or the Equality and Diversity website.

10.2 Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Document Title	Lithium Policy V3.0		
Date Issued/Approved:	July 2019		
Date Valid From:	July 2019		
Date Valid To:	July 2022		
Directorate / Department responsible (author/owner):	Pharmacy Department Author: Ian Nicholls, Lead Pharmacist for EPMA and Governance Owner: Lisa Thomas, Clinical Pharmacist		
Contact details:	01872 252598		
Brief summary of contents	To provide clear actions that need to be taken by medical, nursing and pharmacy staff when a patient taking lithium is admitted to RCHT. Adherence to the policy ensures that RCHT is compliant with the NPSA PSA005 alert “Safer Lithium Therapy”.		
Suggested Keywords:	Lithium; monitoring		
Target Audience	RCHT	CFT	KCCG
	✓		
Executive Director responsible for Policy:	Rob Parry, Medical Director		
Date revised:	June 2019		
This document replaces (exact title of previous version):	Same document		
Approval route (names of committees)/consultation:	Medicines Practice Committee		
Care Group Manager confirming approval processes	Robin Jones		
Name and Post Title of additional signatories	Not Required		
Name and Signature of Care Group/Directorate Governance Lead confirming approval by specialty and divisional management meetings	{Original Copy Signed}		
	Name: Kevin Wright		
Signature of Executive Director giving approval	{Original Copy Signed}		

Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet & Intranet	✓	Intranet Only	
Document Library Folder/Sub Folder	Clinical / Pharmacy			
Links to key external standards	N/A			
Related Documents:	N/A			
Training Need Identified?	No			

Version Control Table

Date	Version No	Summary of Changes	Changes Made by *(Name and Job Title)*
01 Aug 10	V1.0	Initial Issue	Ian Nicholls Lead Pharmacist for Governance & EPMA
19 Feb 13	V2.0	Second issue – Reviewed and put into new Trust format	Beth Hodgson Medication Safety Lead Pharmacist
May 2016	V2.1	Third Issue - Reviewed and put into new Trust format	Ian Nicholls, Lead Pharmacist for Governance & EPMA
July 2019	V3.0	Fourth Issue – Reviewed, minor adjustments to formatting	Lisa Thomas, Clinical Pharmacist

All or part of this document can be released under the Freedom of Information Act 2000

This document is to be retained for 10 years from the date of expiry.

This document is only valid on the day of printing

Controlled Document

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Initial Equality Impact Assessment Form

Name of the strategy / policy /proposal / service function to be assessed Lithium Policy V3.0	
Directorate and service area: Pharmacy	**New or existing document:** Existing
Name of individual completing assessment: Lisa Thomas	**Telephone:** 01872 252598

1. *Policy* Aim* *Who is the strategy / policy / proposal / service function aimed at?*	To provide clear actions that need to be taken by medical, nursing and pharmacy staff when a patient taking lithium is admitted to RCHT.
2. *Policy* Objectives*	To ensure that RCHT complies with the requirements of NPSA PSA009 – Safer Lithium Therapy
3. *Policy* – intended Outcomes*	All activities connected to the prescription, administration and monitoring of lithium therapy comply with the standards set out in the alert.
4. *How will you measure the outcome?	Ongoing clinical audit
5. Who is intended to benefit from the *policy*?	Patients receiving lithium therapy

6a Who did you consult with	Workforce	Patients	Local groups	External organisations	Other
	X				
b). Please identify the groups who have been consulted about this procedure.	**Please record specific names of groups** The Medication Practice Committee, senior medical and nursing staff.				
What was the outcome of the consultation?	Agreed				

7. The Impact
Please complete the following table. **If you are unsure/don't know if there is a negative impact you need to repeat the consultation step**.

Are there concerns that the policy **could** have differential impact on:

Equality Strands:	Yes	No	Unsure	Rationale for Assessment / Existing Evidence
Age		**X**		

Sex (male, female, trans-gender / gender reassignment)		**X**		
Race / Ethnic communities /groups		**X**		
Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.		**X**		
Religion / other beliefs		**X**		
Marriage and Civil partnership		**X**		
Pregnancy and maternity		**X**		
Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian		**X**		

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- You have ticked "Yes" in any column above and
- No consultation or evidence of there being consultation- this excludes any *policies* which have been identified as not requiring consultation**. or**
- Major this relates to service redesign or development

8. Please indicate if a full equality analysis is recommended.	**Yes**		**No**	**X**

9. If you are **not** recommending a Full Impact assessment please explain why.

Policy does not discriminate between any groups

Date of completion and submission	July 2019	Members approving screening assessment	Policy Review Group (PRG) **APPROVED**

This EIA will not be uploaded to the Trust website without the approval of the Policy Review Group.

A summary of the results will be published on the Trust's web site.