DISCLAIMER
The information contained within has been prepared by the NHSSB Prescribing Advisers. It is intended for use by practices within the Northern Health and Social Services Board area. We have made every effort to check that the information is correct at the time of publication. The Northern Health and Social Services Board does not accept any responsibility for loss or damage caused by reliance on this information.

ACKNOWLEDGEMENT
We would like to acknowledge that information from the Medicines Partnership publication 'Room for Review' has been used during the preparation of this workbook.
What is a ‘Medication Review’

One definition of medication review is:

‘A structured, critical examination of a patient’s medicines with the objective of reaching an agreement with the patient about treatment, optimising the impact of medicines, minimising the number of medication-related problems and reducing waste.’

The outcome of the review will be a decision about the continuation (or otherwise) of the treatment.

Why carry out medication reviews?

Medication is by far the most common form of medical intervention in the UK. Many people are prescribed multiple, long term medications and it is therefore a major challenge to ensure that these patients get the maximum benefit from all their medicines.

There is an increasing body of published evidence supporting the effectiveness of medication review as a means of optimising therapy, improving health outcomes, reducing the likelihood of medicine-related problems and cutting waste. Evidence is also emerging that targeted medication review can enable people to maintain their independence and avoid admission to residential care or hospital.

The new GMS contract quality and outcomes framework refers to medication review in the medicines management section of the organizational domain.

Med 5 ‘A medication review is recorded in the notes in the preceding 15 months for all patients being prescribed four or more repeat medicines (excluding OTC and topical medications): Standard 80% (7 points)

Med 9 ‘A medication review is recorded in the notes in the preceding 15 months for all patients being prescribed repeat medicines (excluding OTC and topical medicines): Standard 80% (8 points)

In addition the NSF for Older People in England and Wales sets standards for medication review in the elderly population. This specifies that all patients aged over 75 years should have an annual review of their repeat medication and those taking four or more medicines should be reviewed six monthly.

The most common medicines-related problems include adverse drug reactions and treatment failures. Many of these can be attributed to lack of monitoring and follow-up of the effects of medicines, over or under-prescribing, and patients not understanding their medicines and not taking them as prescribed.
Principles of medication review

1. All patients should have a chance to raise questions and highlight problems about their medicines

2. Medication review seeks to improve or optimise impact of treatment for an individual patient

3. The review is undertaken in a systematic way, by a competent person

4. Any changes resulting from the review are agreed with the patient

5. The review is documented in the patient’s notes

6. The impact of any change is monitored

There are a number of approaches to medication review. These include:-

1. Reviews that are carried out without patient involvement have value but are not as effective as face-to-face discussion with the patient. A medication review that does not take account of what the patient actually takes – rather than what is on the prescription or in the record – is incomplete. It is important to know what the patient is actually taking, the response to medication, whether the condition is worsening or improving and if there are any unrecognised medical needs.

2. Face-to-face review also provides the opportunity to discuss the patient’s values and beliefs, and how taking medicine fits in with the patient’s daily life. It provides an opportunity to assess patient’s knowledge of their medication.

Whatever the type of review, it is essential that the patient is informed and involved in the decision making around changes and is provided with opportunity to discuss and feedback how they feel about their medication. Any aspect of a review which leads to a change in medication must be discussed with the patient or carer.

Who should carry out a review?

There is still confusion about who should carry out medication reviews and how and where they should be documented. A doctor, pharmacist or nurse should carry out more thorough reviews but with adequate training and direction reception staff can perform a ‘tidy up’ of the record in advance of the review.

Practice nurses running chronic disease clinics would be ideally placed to carry out these medication reviews. Refer to the manual ‘Reviewing and Amending Prescribing Records’ or speak to a member of the Prescribing Support Team (Appendix E) for more information.

Searching the practice computer system to identify patients on a particular medicine with subsequent conversion to a different product is not considered to be a medication review as often patients may only discover that their medicines have been altered when their next repeat prescription is different from the last.
The Review Process:

1. Identify patients

2. Carry out the review

3. Record review outcomes / Feedback results

4. Audit / Quality assurance
1. Identifying patients - Which group of patients to review?

- Starting to carry out medication reviews can be quite daunting particularly where there are large numbers of patients involved.

- Medication review may initially need to be prioritized to patients who are at risk of medicine related problems. These risk groups fall into 5 main categories that often overlap – see table.

- It may be useful for the practice to decide how they plan to prioritise these patient groups and develop a plan for how the work is going to be undertaken.

- Once the patient group has been agreed the practice can run computer searches for the appropriate patients. The Board’s Prescribing Support Assistant can help the practice with their computer searches.

- The practice may decide to write to patients to invite them for review. See Appendix A for an example of a letter of invitation and patient information leaflet. Alternatively patients may be invited to make an appointment when they phone for their repeat medication prescriptions. A message can be inserted and will be flagged up on the medication screen. Alternatively a note can be made in the consultation section of the computer or paper record.

- The practice needs to have a system to record that patients have been invited for review and needs to agree what needs to be done in the case of patients who do not keep their appointment or non responders to the invitation. In these events some practices do not authorise issue of further repeat prescriptions until a review appointment has been made.
<table>
<thead>
<tr>
<th>High Risk Group</th>
<th>Examples of reasons for high risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elderly ( &gt;75 years )</strong></td>
<td>• Complex medication regimen</td>
</tr>
<tr>
<td></td>
<td>• Polypharmacy</td>
</tr>
<tr>
<td></td>
<td>• Multiple pathologies</td>
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<td></td>
<td>• Compliance issues</td>
</tr>
<tr>
<td></td>
<td>• Physical problems (eg swallowing, arthritis)</td>
</tr>
<tr>
<td></td>
<td>• Resident in care home</td>
</tr>
<tr>
<td></td>
<td>• Mental states eg confusion, dementia, depression, anxiety</td>
</tr>
<tr>
<td><strong>Chronic diseases</strong></td>
<td>• Polypharmacy</td>
</tr>
<tr>
<td></td>
<td>• Recent discharge from hospital</td>
</tr>
<tr>
<td></td>
<td>• Medicines from more than one source</td>
</tr>
<tr>
<td></td>
<td>• Adverse effects / drug interactions</td>
</tr>
<tr>
<td></td>
<td>• Taking drugs requiring special monitoring</td>
</tr>
<tr>
<td></td>
<td>• Current management plan is outdated due to the availability of new evidence</td>
</tr>
<tr>
<td><strong>Specialist drugs</strong></td>
<td>• Drugs with narrow therapeutic range eg digoxin, warfarin</td>
</tr>
<tr>
<td><strong>Nursing/ Residential</strong></td>
<td>• Drugs on red/amber lists</td>
</tr>
<tr>
<td><strong>Homes</strong></td>
<td>• Drugs which require special monitoring eg lithium</td>
</tr>
<tr>
<td><strong>Polypharmacy</strong></td>
<td>• Use of commercial sip feeds as an ‘easy’ alternative to liquidised or pureed foods</td>
</tr>
<tr>
<td></td>
<td>• Polypharmacy</td>
</tr>
<tr>
<td></td>
<td>• Poor utilisation of ‘Home Remedies’</td>
</tr>
<tr>
<td></td>
<td>• Reordering systems can be time-consuming</td>
</tr>
<tr>
<td></td>
<td>• Overuse of antipsychotics/sedatives</td>
</tr>
<tr>
<td></td>
<td>• Taking four or more regular medicines daily</td>
</tr>
<tr>
<td></td>
<td>• Complex regimes</td>
</tr>
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<td></td>
<td>• Compliance problems</td>
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<tr>
<td></td>
<td>• Adverse effects or drug interactions</td>
</tr>
<tr>
<td></td>
<td>• Current management plan is outdated due to the availability of new evidence</td>
</tr>
</tbody>
</table>

** Specialist Drugs - refer to Appendix D for “Drugs that Require Monitoring.” The information in Appendix D is not comprehensive and is intended only as a guide to the more commonly prescribed drugs that have monitoring requirements.
2. **Carrying out the review**

**Ten-point medication review** - Follow this simple protocol for a structured review:

- Why is this patient taking this drug?
- Is the reason clear from the history summary?
- Is the patient capable of taking this drug and is compliance satisfactory?
- Are any tests required to monitor side-effects or dosage? (Appendix D)
- Are there any potential drug interactions and are they of significance?
- What would happen if the drug was stopped?
- Does the repeat need to be continued for the next 6 or 12 months?
- Are any non-repeat items being prescribed regularly?
- Should these be converted to formal repeats?
- Set a date for the next review?

*See Appendix B for examples of forms and prompts that may be used during the review*
3. **Recording the review outcomes**

Where possible READ codes should be used to document reviews.

It is vital to ensure that the computer record of every patient who has a medication review is given the required READ code for the appropriate type of medication review.

<table>
<thead>
<tr>
<th>TYPE OF MEDICATION REVIEW</th>
<th>SUGGESTED READ CODES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1:</strong></td>
<td></td>
</tr>
<tr>
<td>Review of a list of the patient’s medication under the direction of a doctor, nurse or pharmacist, but in the absence of the patient</td>
<td>8B3h (medication review without the patient)</td>
</tr>
</tbody>
</table>

| **Level 2:**              |                       |
| Treatment review under the direction of a doctor, nurse or pharmacist, in the absence of the patient but with reference to the patient’s clinical record | 8B314 (medication review) or for systems with 4 byte coding only 8B3S (medication review) |

| **Level 3:**              |                       |
| Clinical medication review specifically undertaken by a doctor, nurse or pharmacist in the presence of the patient with access to the patient’s clinical record and laboratory test results as required | 8B3V (medication review done) |

Practice Nurses performing medication reviews as part of, for example, an asthma clinic should also be encouraged to make use of the appropriate READ code.
4. Quality Assurance / Audit

Quality assurance and audit should be part of the medication review process.

Quality Assurance

One method of assessing the quality of the review system is by evaluating the feedback from patients or their carers who have participated in the medication review process. This might include an evaluation of their experience of the review and the level of satisfaction with its outcome.

See Appendix C for patient feedback questionnaire.

Audit

Medication review is an integral part of the repeat prescribing process and many practices undertake regular audits of their repeat prescribing system.

If READ codes for medication review are used to document that reviews have been undertaken, then a search of the practice computer system should easily identify those patients who have had a medication review within the previous 15 months.

The use of READ codes in this way will allow practices to easily collect the information required by the new GMS contract to support the quality scoring system. The points allocated to medication review can be found in the introduction section of this booklet.

Measuring Progress

It is important to identify the baseline before audit is undertaken. For many, there will be no easy way to measure this as this will depend on the practices use of their clinical computer system. Paperless practices may find that they are able to run searches to identify their baseline medication review rate.

The practice should agree an achievable target for increasing their medication review rate. The standard set for the new contract is 80% of patients however the practice should set realistic targets against which they can measure their performance.

Regular feedback is essential to enable evaluation of the progress being made and to ensure that the practice is on target to achieve their objectives.
Appendix A

Example of Patient Invitation Letter and Patient Information
Dear

To improve the services that we currently offer you, we are inviting you to attend for a medication review. This is to help you get the best from your medicine. During the review you will be able to:

✔ Discuss your medicines and ask any questions you may have
✔ Check what your medicines are for
✔ Check you are taking your medicines properly
✔ Discuss any problems you may have
✔ Get advice about taking your medicines.

Please be assured that change will only be made to your medication if it will improve your treatment. No medicine will be altered without agreement between you and your doctor. We hope that you will find the review useful.

We would ask you to make a routine appointment at the surgery with your usual GP/our practice pharmacist/the practice nurse at a time convenient to you. The appointment will last about 20 minutes.

Please tell the staff that the appointment is for a medication review. It would also be helpful if you would bring to the appointment the medicines that you get on prescription as well as any other medicines that you are currently taking (eg bought from a pharmacy or store or ‘borrowed’).

Do not hesitate to contact us for further information.

Yours sincerely
What is a Medication Review?

- A medication review is a chance to check that your medicines are the best ones for you. The review involves checking your medicines are working as well as they can and are not causing side effects.
- It is also a chance for you to ask questions about your medicines

The purpose of the review is to make sure that you are being offered the right treatment and to agree what medicines you will take.

The Medication Review Clinic

It is good practice to have your medicines reviewed at least once a year. Attending a medication review clinic may be a new experience for you but many people have found it valuable.

If you make an appointment and come for a review you can:

- Tell a health professional how you feel about your treatment
- Have your condition(s) and medicines explained
- Understand more about what your medicines are for and how they will help your illness
- Have your questions answered

And find out :

- If you are taking the best medicines for your problems
- About side effects you might expect from your medicines
- What other treatments are available
- How best to take your medicines

How to make an appointment

You can make a routine appointment at the reception. If you have difficulty in getting to the surgery, it may be possible to visit you at home.
How should I prepare for the clinic appointment?

When you come to the medication review clinic please bring along all of your medicines. This includes the medicines you get on prescription from your doctor as well as herbal remedies and medicines you buy from the chemist or supermarket. By medicines we mean anything you take including tablets, liquids, inhalers, creams and ointments. Please also bring along medicines you no longer take.

You may also want to make a list of questions that you want to ask about your medicines. For example:

• How do they work?
• How do I know they are helping me?
• Do I still need to take them?
• Why do I have so many pills?
• What side effects do they cause?
• How safe are they?
• Can I have containers that are easier to open?
• Is there anything that can help me to remember to take my medicines?
• Are there any new medicines that might help me?

If there is someone who helps you manage your medicines such as a family member, you may find it helpful to bring them with you to your review.
Appendix B

Examples of Forms for Documenting Medication Review
**Medication Review Form**

**Patient Details**

<table>
<thead>
<tr>
<th>Question</th>
<th>Y/N</th>
<th>Reason/Action/Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you take all the medicines listed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you administer all the medicines yourself?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you know what each medicine is for?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you tell me how many you take of each?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you any problems taking your medicines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you experience any side effects or other problems?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you taking any other medicines?</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>(OTC, herbal)</td>
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<tr>
<td>Do you use a regular pharmacy for your medicines?</td>
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<tr>
<td>Does someone collect your medicines for you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is patient showing any signs/symptoms that need to be brought to GP attention?</td>
<td></td>
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<tr>
<td>Where do you store your medicines?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Care/Action Plan**

1
2
3
4
5
6
Referrals

<table>
<thead>
<tr>
<th>Refer to</th>
<th>Reason</th>
<th>Action Agreed</th>
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<tbody>
<tr>
<td>GP</td>
<td></td>
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<tr>
<td>Nurse</td>
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<tr>
<td>Pharmacist</td>
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<tr>
<td>Other</td>
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</tbody>
</table>

GP Verification

Review has been done, recommendations implemented and recorded in notes/computer

GP Signature _______________________________ Date ____________________

Next review date: _________________

(6 months >75 on 4+ medications, 12 months >75)
# Current Medication

<table>
<thead>
<tr>
<th>Current regular repeat medication (dose, frequency, quantities)</th>
<th>Start Date</th>
<th>Indication in notes</th>
<th>Compliant Y/N</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
Example 2:

**Medicine review documentation**  
(to be scanned or filed in notes)

<table>
<thead>
<tr>
<th>Name:</th>
<th>DOB:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**Computer ID:**

**Patient report of medicines taken**

- Attach computer print of current medicines to back of form
- List below any medicines which are not taken according to computer print out

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dose and Frequency</th>
<th>Understanding of medicine purpose</th>
<th>Problems experienced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Problems identified with medicines:**

| Problems identified with medicines:- |
New medical problems identified by review:-

Action taken:-

<table>
<thead>
<tr>
<th>Date</th>
<th>Change</th>
<th>Doctor</th>
<th>Permission given</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
Example 3:

**Medication Review for Nursing Home Patients**

Meeting: Note date, time and personnel involved

Contact Person: 

**General Issues:**

Order scripts on a 28 day cycle: YES/NO

Have MARs been checked: YES/NO

**Pharmacy Issues:**

List of Home Remedy Medicines:

How are medicines ordered?

Problems with ordering and supply of medicines:

**Suggested Action:**
Patient:

Diagnoses:

<table>
<thead>
<tr>
<th>Suggested Action</th>
<th>Please tick if you agree with change</th>
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</table>

GP’s signature __________________________

Date __________________________
**Example 4:**

**Medication Review Clinic**

**Patient ID:** ________________

Date of Review ________________

Summary Sheet Attached: Yes/No

### Tests Required:

<table>
<thead>
<tr>
<th>Tests Required</th>
<th>Reason</th>
<th>Ordered</th>
<th>Results</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

### Recommendations

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Directed to:</th>
<th>✣Classification</th>
<th>Actioned</th>
<th>✡Outcome @ 3 mths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
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<tr>
<td>3.</td>
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<tr>
<td>4.</td>
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</tbody>
</table>

*Classification: 1= Drug Stopped, 2=Drug changed, 3=Drug same, dose changed, 4=Drug same, formulation changed, 5=Drug same, Dose freq changed, 6=New drug added

*Outcome: 1= Never changed, 2=Changed, but changed back/to alternative, 3=Remained changed
<table>
<thead>
<tr>
<th>Time Period</th>
<th>Dates</th>
<th>Repeats</th>
<th>Number of Dosage Intervals/day</th>
<th>Cost 28 days</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months before Review</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3 months after review</td>
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</table>
Appendix C

Example of Patient Questionnaire
Medication Review Clinic
Questionnaire

We are keen to find out what you thought of the medicine review clinic. This is so that we can improve the service for the future. Please could you take a few minutes to complete this questionnaire. Your comments will be treated in the strictest confidence.

1. When invited for a medicine review did you feel it was necessary?
   - Yes very much
   - Yes partly
   - Not really
   - Not at all

2. Did you have long enough to discuss what you wanted to cover?
   - Yes very much
   - Yes partly
   - Not really
   - Not at all

3. Did the person running the clinic answer your questions?
   - All of them
   - Some of them
   - None of them
   - Not at all

4. Do you feel that as a result of attending the clinic you have a better understanding of your medicines?
   - Yes very much
   - Yes partly
   - Not really
   - Not at all

5. Did you agree with any changes that were made?
   - Yes very much
   - Yes partly
   - Not really
   - Not at all

6. Did you have any disappointments about the outcome of the clinic?
   - Very disappointed
   - Some
   - Not really
   - Not at all

7. Would you recommend attending a medicines review clinic to a friend or relative?
   - Yes
   - Maybe
   - No
   - Don’t know

8. Would you attend again when your next review is due?
   - Yes
   - Maybe
   - No
   - Don’t know

If you had any disappointments or any other comments please let us know in the box below. Is there anything else you want to say about the medication review clinic? Your comments could help us improve it.
Appendix D

Examples of Drugs that Require Monitoring

This list is not comprehensive and is intended only as a guide to the more commonly prescribed drugs that have monitoring requirements.
<table>
<thead>
<tr>
<th>Drug</th>
<th>Suggested Monitoring</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardiovascular System (BNF Chapter 2)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Angiotensin converting enzyme inhibitors (ACEI) and Angiotensin-II receptor antagonists | **Baseline:**  
- BP renal function and serum potassium  
**Routine:**  
- BP renal function and serum potassium 1 week after initiation, 1 week after significant dose increases, and on an annual basis | Consider modifying / stopping treatment if:  
- Serum creatinine concentration increases by 50% or more  
- Serum potassium is 5.0mmol/l or more |
| **Diuretics (loop and thiazide)** | **Baseline:**  
- Serum potassium and U&E  
**Routine:**  
- Serum potassium within 4 – 6 weeks of starting treatment  
- Annual U&E  
- Annual urinalysis for glucose if on thiazides | If serum potassium falls below 3.0mmol/l consider adding potassium sparing diuretic. Thiazides may induce diabetes mellitus. |
| Amiodarone | **Baseline:**  
- LFTs, TFTs,  
- BNF recommends a chest X-ray  
- Serum potassium and ECG  
**Routine:**  
- Check LFTs, TFT’s 6 monthly  
- Annual ophthalmic examination  
- Repeat chest x-ray if pulmonary toxicity suspected | If biochem results are borderline repeat in 6 weeks. If no improvement refer back to specialist. Thyrotoxicosis can occur years after stopping amiodarone therefore a low threshold for TFT testing is warranted. Long term TFT testing is required in all patients with a history of thyrotoxicosis even after amiodarone is stopped. |
| Digoxin | **Baseline:**  
- Renal function and serum potassium  
**Routine:**  
- Patients taking a diuretic should have serum potassium monitored | Regular monitoring of digoxin levels is not necessary unless signs and symptoms which suggest toxicity or inadequate dose. |
<p>| Warfarin | As per NHSSB “Guidance on Warfarin Prescribing and Monitoring – notes for GPs” | |</p>
<table>
<thead>
<tr>
<th>Drug</th>
<th>Suggested Monitoring</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respiratory System (BNF Chapter 3)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theophylline</td>
<td>Once maintenance dose achieved check theophylline levels 6 – 12 monthly</td>
<td></td>
</tr>
<tr>
<td><strong>Central Nervous System (BNF Chapter 4)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>Baseline: LFTs, FBC, U&amp;Es, Routine: Periodic monitoring of LFT, FBC and U&amp;E</td>
<td>Frequent monitoring of serum concentrations is not required except when using drugs which interact and when toxicity is suspected.</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Baseline: LFTs and FBC, Routine: FBC and LFTs regularly Folic acid 6 monthly Serum phenytoin concentrations may be necessary for optimal dosage adjustments</td>
<td></td>
</tr>
<tr>
<td>Sodium Valproate</td>
<td>Baseline: LFTs and screen for potential bleeding complications Routine: LFTs should be checked monthly for first 3 months then annually</td>
<td>Monitoring serum concentrations of sodium valproate is not required. Sodium valproate can cause thrombocytopenia. Spontaneous bruising or bleeding is an indication to withdraw drug pending investigations</td>
</tr>
<tr>
<td>Vigabatrin</td>
<td>Baseline: Visual field testing by perimetry Routine: Visual field testing by perimetry every 6 months</td>
<td>Visual field defects reported in about one third patients. Patients who develop this should be referred to a specialist</td>
</tr>
<tr>
<td>Atypical Antipsychotics (amisulpride, olanzapine, quetiapine, risperidone, zotepine)</td>
<td>Baseline: CK, FBC, U&amp;Es, LFTs, TFTs, BP, weight Prolactin measurement for all except quetiapine Blood glucose for olanzapine, quetiapine and zotepine Patients at risk of arrhythmias should have an ECG before starting zotepine Routine: Amisulpride – monitor FBC and U&amp;E’s every 6 months Olanzapine – Check blood glucose and FBC every 3 – 6 months, LFTs every 3 months, U&amp;Es every 6 months Quetiapine – blood glucose and FBC every 3 – 6 months, LFTs monthly for 3 months, TFTs every 6 months and U&amp;Es every 6 months Risperidone – FBC and LFTs every 3 – 6 months, U&amp;Es every 6 months Zotepine – blood glucose 3 – 6 monthly, ECG when maintenance dose is reached, FBC and LFTs 3 – 6 monthly and U&amp;Es 6 monthly</td>
<td></td>
</tr>
</tbody>
</table>
### Drug Suggested Monitoring Additional Information

<table>
<thead>
<tr>
<th>Drug</th>
<th>Monitoring Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clozapine</td>
<td>The use of clozapine is restricted to patients registered with the Clozaril Patient Monitoring Service (CPMS) and monitoring requirements are available from registered sites</td>
</tr>
</tbody>
</table>
| Lithium      | Baseline:  
  - TFTs, renal and cardiac function  
  Routine:  
  - Serum lithium concentrations must be checked weekly until stabilized and then regularly every 3 months  
  - TFTs 6-12 monthly  
  - Renal function should be checked at monthly intervals for 3 months and then every 3 – 6 months |

#### Endocrine System (BNF Chapter 6)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Monitoring Requirements</th>
</tr>
</thead>
</table>
| Thyroxine | Baseline:  
  - TSH and T4  
  Routine:  
  - TFTs should be monitored annually in stable conditions or 3 monthly after dosage changes |

#### Musculoskeletal System (BNF Chapter 10)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Monitoring Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azathioprine</td>
<td>As per regional shared care guidelines*</td>
</tr>
<tr>
<td>Hydroxychloroquine</td>
<td>As per regional shared care guidelines*</td>
</tr>
<tr>
<td>Leflunamide</td>
<td>As per regional shared care guidelines*</td>
</tr>
<tr>
<td>Methotrexate</td>
<td>As per regional shared care guidelines*</td>
</tr>
<tr>
<td>Penicillamine</td>
<td>As per regional shared care guidelines*</td>
</tr>
<tr>
<td>Sodium Aurothiomalate</td>
<td>As per regional shared care guidelines*</td>
</tr>
<tr>
<td>Sulphasalazine</td>
<td>As per regional shared care guidelines*</td>
</tr>
</tbody>
</table>

* Contact Helen Bell, Interface Pharmacist or Gillian Bruce, Interface Technician at Antrim Area Hospital for further information
  Tel: 9442 4911 (direct) or 9442 4000 (Bleep 5347)
Appendix E

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