Milton Keynes Clinical Commissioning Group

Pharmaceutical Advisers

Guides to Good Practice

This pack contains three guides to good practice.

1. **A Guide to support the safe and effective transfer and use of information about medicines in general practice**

2. **A Guide to the Medication Review Process**

3. **Drug Monitoring Requirements**

The guides are designed to help practices meet the requirement for registration with the Care Quality Commission and promote good practice. Check lists are provided to help the practice undertake a self audit.

Further advice and guidance may be obtained by contacting the Pharmaceutical Advisers or Neighbourhood Pharmacists.

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Good Practice Checklist

	Confirm
Does the practice have a mechanism for providing information about medicines when a patient is admitted to hospital or goes for an out patient appointment? (See pages 2-4)	
Does the practice have a policy for handling information received following discharge or out patient appointment? (See pages 2-4)	
Does the practice have a written repeat prescribing policy? (See pages 7-16)	
Are prescriptions for methotrexate and controlled drugs handled separately from other prescriptions? (See page 13)	
Are medication incidents discussed at practice meetings? (See pages 15-16)	
Is there a training policy for staff to ensure current staff keeps up to date with changes in medicines processes and new staff become familiar with the systems? (See page 11-12)	
Does the practice have a lead clinician who assesses the relevance of safety alerts, drug recalls, NICE Guidance, etc. and disseminates the information to colleagues? (See page 17)	
Do all practitioners undertake medication review in a manner consistent with good practice? (see pages 22 – 34)	
Is biochemical monitoring carried out at the correct frequency? (See pages 40-64)	

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Introduction

Practices may receive information about medicines for a number of reasons:-

- Each time a patient is transferred from one healthcare setting to another, it is essential that accurate and reliable information about the patient's medication is transferred at the same time
- Drug alerts or information via the CAS alerting system, Safety bulletins from the National Patient Safety Agency etc
- Local prescribing advice and guidance from the Pharmaceutical Advisers

This document is designed to help practices put processes in place to ensure medicines information is provided or acted on in a timely and efficient manner. Much of it builds on guidance issued by the National Prescribing Centre in their document "Saving time, helping patients: A good practice guide to quality repeat prescribing"

Medication information on individual patients

The patient journey in any field of healthcare has areas of potential risk that must be assessed and managed. Medicines are no exception. Examples of transfer of care include:-

- When a patient is discharged following a hospital admission back into primary care
- When a patient is admitted to hospital, whether this is planned or unplanned
- When a patient moves into a residential care setting, whether temporarily or permanently
- When a patient is seen at a hospital out patient appointment
- When a patient registers with a new GP practice

Every time a transfer of care takes place it is essential that accurate and reliable information about the patient's medication is transferred at the same time.

The medicines that a patient is taking are not necessarily the same ones recorded in their last updated record. Any list will only be as accurate as the day it was last updated and even then may not present a complete picture of what the patient is actually taking.

Records are kept in a variety of places and formats. The GP surgery patient record should be the central record. However, additionally the patient may have old prescription request slips and there may be records held by the hospital, community nursing team, community pharmacy and care homes.

What is medicines reconciliation?

Medicines Reconciliation (MR) is traditionally defined as the process of ensuring that medicines prescribed on admission to hospital correspond to those that the patient was taking before admission. However, it applies equally to the process of ensuring that medicines prescribed on discharge are accurately recorded by the GP once the patient has returned home.

When patients are admitted to hospital there is a minimum data set of information required by secondary care. Similar information would be needed if a patient wishes to register with a new practice. This includes:

- Complete patient details
- Presenting conditions and co-morbidities
- A list of all medicines currently prescribed for the patient (including OTC medicines if known)
- Dose, frequency, formulation, route of all medicines
- Known allergies
- Major side effects / sensitivities / adverse reactions to previously taken medicines

Likewise, when patients are discharged, the following information should be made available to the GP:-

- Key diagnosis made during patient's admission
- Prescribed medication, current at the time of discharge with relevant stop dates
- Any adverse reactions or allergies documented during admission
- The name of the responsible Consultant
- Any immediate post discharge requirement for the primary healthcare team
- Any planned follow up arrangements
- Whether the patient has had any relevant infection
- Contact name in the event of a query

All information should be timely, clear, unambiguous and legible.

Sources of information for medicines reconciliation
There are many potential sources of information about patient's medicines – some more reliable than others.

a) More reliable sources

- A recent printout from a GP computer system – verified to ensure the patient is in fact taking the listed medicines – and checked for additional over the counter medicines or herbal remedies. Please note that there is a risk that medicines that are not prescribed by the GP may not be recorded on the prescription record eg anticoagulants, depot antipsychotics, specialist renal medicines etc

- Repeat prescription tear-off slips. Check the date of printing is recent and note that seasonal products eg hay fever medication and acute / one off prescription items may not appear on the list.

- Patient's own medicines. Again these may not form a complete record. Patients may not class topical or inhaled items as medication. They may not bring bulky items or those requiring fridge storage.

- Patients and their carers. However, even when patients may be considered a reliable source of information, pronunciation of medicine names may not always be accurate and may lead to confusion.

- Discharge summaries from the hospital. However, these may omit medicines not initiated during the hospital admission, leading to uncertainty as to whether omitted medicines have been discontinued.

- The Green Bag scheme aims to support transfer of medicines between healthcare settings. However, they carry the same limitations as listed above under patient's own medicines.

b) Less reliable sources

- Medicines Administration Records (MAR sheets) from social care settings
- Community pharmacy Patient Medication Records (PMR) as the patient may not have all their medicines dispensed at the same pharmacy.
- Information from specialists may only list the medicines associated with that specialty.
- "Message in a bottle" – a voluntary scheme in which a plastic canister containing a variety of essential information is kept in the patient's fridge and accessed by emergency teams. The information may be out of date or incomplete.
- Monitored dosage Systems and other compliance aids may not contain the full range of medication. The information may become detached from the container and it may not be possible to identify all the individual tablets.

Roles and Responsibilities

The healthcare professional transferring or receiving care is responsible for the information that is exchanged. In primary care, this would be a GP.

There needs to be an effective infrastructure to support the exchange of information. The will include local documentation (eg discharge summaries), policies for updating patient records, recording allergy status, managing repeat prescribing etc. Additionally, some steps in the process will require an understanding of therapeutics and clinical practice. This includes an ability to interpret a prescription, knowledge of the legal requirements for prescribing as well as the indications and dosage regimens. This level of therapeutic knowledge would normally be achieved by doctors, nurses, pharmacists and some suitably qualified medicines management technicians.

Barriers to effective transfer of information

These fall into a number of categories – systems, skills and people

a) Systems

It is important to have a documented system in the practice. If the administration part of the process is being undertaken by an unqualified person, then the GP, practice nurse or practice pharmacist must review the

list of medication first and check any changes made to the records before a prescription is issued to the patient.

The full implementation of electronic transfer of information between healthcare settings will make the process simpler. However, it will still be essential to enter data accurately.

b) Skills and people

There must be a balance between “too many cooks” and over-reliance on one or two people to look after information flows within the practice. Levels of staff competence should be agreed and monitored.

Managing the repeat prescribing process

Repeat prescriptions are those issued without a consultation to patients on long-term treatment. They comprise at least two-thirds of all general practice prescriptions, and represent four-fifths of total prescribing drug costs - perhaps £26million a year in Milton Keynes. Patients change; their illnesses change; therapeutics change. Treatment that was ideal last year may not be appropriate now. Periodic review and tight control are necessary to ensure effective treatment, minimise therapeutic misadventure and limit waste.

Zermansky (British Journal of General Practice, 1996, 46, 643-647) wrote that repeat prescribing involves three tasks:

1. Management control:-

- Authorisation check - ensuring that all repeats have been authorised as such by the doctor. Only prescriptions which have been authorised to repeat status may be issued by a prescription clerk. The fact that the patient has already had the medication does not automatically authorise the patient to request it again. Preventing the prescription clerk from issuing items not on the repeat list may create additional work for the doctor, but decreases the potential for error and inappropriate issue of prescriptions.
- Compliance check - identifying patients who overuse or under use their medication
- Review date - ensuring that every patient has a clear indicator of when therapy should be reviewed. If the review date has been exceeded the prescription must NOT be issued. Patients should be advised, at the time of request that the doctor may wish to see them before the item is issued.
- Flagging - ensuring that each patient due for review is brought to the prescriber's attention.

2. Production. This is a straightforward task which involves receiving requests and producing the prescriptions on the computer. Requests from patients should normally be received in writing to reduce the potential for errors. Prescriptions must be prepared with meticulous accuracy and attention to avoid error. Reception staff and the patient should check the new prescription against the request to ensure all items have been accounted for. The patient should be informed of the turnaround time in order to leave

adequate time to order a repeat prescription when their medication is running low.

3. Clinical control. This is the **prescriber's responsibility**. It involves two tasks:

- Authorisation - the decision that a repeat prescription is appropriate, the prescriber being satisfied that the drug is effective, well tolerated, and still needed.
- Periodic review - a review of the patient and the medication by the prescriber to ensure that the treatment is still effective, appropriate and well tolerated. The prescriber makes an informed decision as to whether medication should be continued, changed or stopped.

The production of repeat prescriptions is a team approach with input not only from the GP, but also from the receptionist and practice manager. Effective team work is therefore needed to produce high standards of practice and care.

The Ten Commandments of Repeat Prescribing for Prescription Clerks

1) You will only issue a repeat prescription for items authorised by a GP.
2) You will not take phone requests unless trained to do so.
3) Repeat request slips will be retained with the prescription until after the GP has signed the prescription and the patient has collected it.
4) You will have a recall and review system. It may not be over-ridden other than by a GP. No more than 12 months worth of issues should be authorised before the next review.
5) You shall not start or re-start any item not authorised on the current repeat list.
6) You shall not print a repeat until all queries are resolved.
7) You will not change anything without reference to the GP.
8) You will only issue items specifically requested.
9) You will check and audit your repeat prescribing protocol annually.
10) You will monitor the security of prescriptions in-house.

Authorising repeat prescriptions

Authorisation, and reauthorisation, involves deciding and agreeing with the patient that a repeat prescription is appropriate, that the medication is (still) indicated and effective, required and well tolerated, and that the patient's condition is stable enough to warrant the issue of a prescription without a face-to-face consultation for a determined period of time.
The prescriber authorises the repeat prescription. The date for review is agreed and recorded.

Better practice

Within the practice, it should be clear who can authorise medications to be repeated, and how those are added to the patient's repeat medication list. Only an appropriately qualified prescriber should authorise a medication to a repeat, and set the corresponding review date.

When a medication is first added to a repeat prescription it should be noted clearly why it was started in the first place. It is important to know this when reviewing medication at a future date. The number of repeats, or the period of time, allowed before the next review should be defined.

To aid concordance, patients and / or their carers should be involved in making decisions about their treatment, and about how long they can reorder medication without having to consult the prescriber. The need for any necessary monitoring, and the frequency of this, also should be explained, agreed on and documented. The circumstances under which patients should reconsult before their next planned face-to-face consultation, where this can be foreseen, should also be discussed.

Failure to review medication adequately following an inpatient stay is a common cause of readmission for patients to hospital. Changes in medication following an outpatient appointment, inpatient stay, home visit, etc. should be reviewed by the authorising prescriber before addition or deletion from the repeat list.

Some medications are not suitable for many patients on routine long-term repeat prescription, and a practice policy should specify these, e.g. controlled drugs, hypnotics, etc.

Points to consider

- Are patients / carers involved in the decision-making process?
- Is a clear record made of the indication for treatment, the degree of stability of the condition, and a continuing need for treatment?
- Are desired treatment outcomes agreed and recorded?
- Is an assessment of the acceptability of each medication, its compatibility with existing medication and a risk / benefit analysis made?
- Are clear arrangements, with specified time periods for monitoring and review, agreed and recorded?

- Is a clear record of authorisation by an appropriate prescriber made for all the items to be repeated?
- Who updates the system if changes to medications are made outside of a practice consultation?
- How are hand-written prescriptions, which may not be recorded on the clinical system, dealt with?
- Is there a system in place to capture changes made to medication following inpatient or outpatient attendance?
- Is there is a clear audit trail that shows that only qualified prescribers have authorised or amended repeat prescriptions?
- Is there a process in place to ensure that all prescription lists agree with one another, e.g. written records match the current computerised list?

Requesting repeat prescriptions

The patient decides to reorder the prescription and either they, or their representative, make the request. They are informed when they should be able to collect the prescription. Any queries arising from the request may be clarified at this stage.

Better practice

Practices allow patients to request a repeat prescription in a number of ways. These vary depending on the needs of patients and the practice, e.g. a practice with a significant number of patients who are used to electronic communication might take requests via email.

Irrespective of the method used, the practice must deal with requests accurately, securely and in a timely way. Many practices accept telephone requests, but it may be worth considering having a line dedicated to that purpose, and either asking patients to ring during periods when the surgery is quieter or use an answering machine / voicemail. Using standardised request forms can help ensure that all the necessary information is collected, but there still may be a risk of transcription error and mistakes if messages are confusing.

Written requests are preferable to oral requests because they are likely to be more accurate, and there is a reduced opportunity for errors, mis-understandings, and sometimes fraud. Ideally the tear-off part of a computerised FP10 should be used as it contains a list of all medications the patient has on repeat, and there is no risk of transcription error. Lockable boxes situated somewhere sensible in the practice reception area are useful and secure for people to post their requests in, but should be emptied regularly.

Whichever method is used, patients / representatives etc. need to know how the practice's request system works so they can provide accurate and timely information about the items needed. Details should be provided in the practice leaflet, and receptionists should be able to explain verbally how to make requests, including how to indicate which items are required from the repeat list (it should not be assumed that every item is required). Other patient

information materials, such as surgery posters, developed with input from patients / carers, can help reinforce verbal explanations of the process. Changing the materials displayed on a regular basis may help maximise their impact. Copies of all information should be readily accessible to all users of the service (including those with accessibility problems, and those whose first language is not English).

Patients / representatives who understand how to order repeat prescriptions from their practice, and follow that process, will be inconvenienced less and may have more confidence in the service. Practice staff may find they get fewer queries, less demand for 'instant' prescriptions, and fewer people trying to work outside the system when users also understand how their request is dealt with by the practice, and the complex process followed to produce their repeat prescription safely.

Unstructured timing of receipt of requests can add stress to practice staff and is best avoided during busy clinic hours. Some practices, depending on type and capacity, find it useful to have a member of staff dedicated to the task of dealing with repeat prescription requests. This helps prevent this part of the process adversely affecting, or being adversely affected by, other services offered by the practice.

Where practices decide to allow third party requests, e.g. from family, neighbours, home help etc., they may need to address additional issues, such as:

- Ensuring the correct information is accurately exchanged when those making the request are not fully aware of the medications, dose, frequency, etc., and rely on the label of dispensed medications to give full and accurate details
- Guaranteeing probity if repeat requests are generated by community pharmacists. The practice should have documentation signed by the patient authorising a community pharmacist to request repeats on their behalf.
- Assuring patient confidentiality

Points to consider

- Who requests, and who does the practice allow to request, repeat prescriptions, e.g. patient, carer, pharmacist, care home staff, etc.?
- What information is made available for patients / representatives to explain how requests are taken, and how repeat prescriptions are produced? Is it routinely used and updated?
- Does the practice leaflet contain details on how to make requests for repeat medication?
- How well do practice staff explain the process to those making requests for repeat medication?
- What proportion of patients on repeat medicines, or their representatives, know how and when requests can be made?
- How well does the method used to take repeat requests work? Is it accurate, efficient, secure?

- Do requests follow the practice policy?
- How satisfied are patients / carers with the reordering process?
- How far in advance of the due date is the practice happy to accept requests for further repeats?
- What are the most common queries received? Are they logged? How are they addressed?
- Is it made explicit when the prescription will be ready for collection?
- How does the practice deal with requests for items that are not on the current repeat list?
- How are telephone calls from other agencies requesting patient medication details processed?
- Do patients who have just come out of hospital, or from outpatients, with a new prescription know how to get further supplies?
- What system is in place to amend patients' medication after a hospital admission / outpatient consultation etc. including the deletion of items that are no longer appropriate from the repeat list?

Generating repeat prescriptions

The practice has received a request for a repeat prescription and intends to produce the repeat prescription on the computer. Practice staff view the repeat screen on the computer to determine whether the requested item is on repeat and is authorised. If not, the request is brought to the attention of the prescriber who then determines whether a prescription can be issued as requested or whether the patient should see the prescriber for a review. A check to see if medication review is due is also made.

Ideally, it is at this stage of the process where a judgement may be made as to whether the patient is taking their medication properly, and any concerns can be raised.

Better practice

Requests that do not comply with the patient's authorised repeat prescription, e.g. for a medication that has not been previously issued as a repeat, or has been removed from the current repeat record, should be referred to the prescriber.

Prescription requests that are earlier or later than expected may indicate over- or underuse of that item, leading to suboptimal treatment or potential adverse effects. When this is suspected, it is important to bring it to the attention of the prescriber, or another health care professional, who can conduct a review of their medication, so they can find out why the patient is not using the medication as intended.

Patients should not normally be able to continue to reorder prescriptions when a review is overdue. Therefore review dates should not be overridden without the express permission of the prescriber. If an 'emergency prescription' is issued, the practice must ensure that the patient is taking the medication as was intended, and that in the event of any untoward incident, their actions are defensible.

Review dates should be built into patient records on the computer. One useful choice of date is the month of the patient's birthday, which may help them remember when an annual review is due. However, bear in mind that some patients will need to be seen more frequently. Some computer systems allow the prescriber to authorise a set number of repeats, which the patient can request until the repeats 'run out'. Practice policy may then require the patient to be seen by the prescriber before a further number of repeats are reauthorised. Other systems allow the prescriber to set a review date, and patients may continue to request repeats up to this date. Practice policy may then require the patient to be seen by the prescriber / clinician before more repeats are given and a new review date set. Alternatively, the prescriber / clinician may review the patient's record and reset the review date if recent contact with the patient provides reassurance that this is appropriate.

If a face-to-face review is required, the purpose and nature needs to be clearly explained to patients so they understand why it is important to attend. A patient information leaflet attached to the last repeat prescription issued prior to review may help with this, and can also be used to prompt the patient to make the appointment. The method of advising patients of the need for a review should be carefully considered, taking into account any problems in access that some patients may have.

Points to consider

- How do practice staff know which items are authorised repeats, i.e. not acute items or 'one-off' items?
- What process is in place to identify patients ordering items earlier or later than expected? What process is in place to bring them to the attention of the appropriate prescriber?
- How are items dealt with that have not been requested for a defined period of time e.g. highlighted to prescriber, removed from current repeat record if appropriate, etc.?
- Who is allowed to reset the number of repeats or the period of time before review
- How do all practice staff know how long to continue repeating an item before the patient is due for a medication review?
- How does the practice deal with requests where the authorised number of repeats is exceeded or recorded date of review is reached (and the patient has not been seen)?
- Is the number of repeats allowed before reauthorisation strictly adhered to?
- How are items requested that have not been authorised dealt with, including those that have not previously been issued as a repeat or have been removed from the current repeat record?
- How and when can staff generating the prescription bring up anomalies or queries with an appropriately qualified prescriber?
- Does a clear audit trail exist that shows that only qualified prescribers have authorised or amended repeat prescriptions?

- How does the practice deal with requests for an emergency supply when a review is overdue?
- What additional issues need to be considered when the patient is going away from home for long periods?

Producing and signing repeat prescriptions

The prescription is usually generated by the practice computer system or, less frequently, hand-written, and then given to the prescriber for signing. The prescriber checks that the prescription, as presented, is satisfactory, i.e. completed properly, no therapeutic duplication, strength, formulation and quantities appropriate, and no review due or overdue. This is ideally done with reference to the patient's records. The prescription is signed and returned to practice staff for collection by the patient or their representative. If a review is required or overdue, the patient is advised of this and an appointment made.

Better practice

The majority of repeat prescriptions tend to be produced by receptionists. However, some practices have a designated person with protected time to produce the prescriptions and deal with associated tasks, which can be efficient, provide consistency and reduce the potential for errors.

Practice staff should ensure, that administratively, the prescription is complete. Any anomalies or queries should be brought to the attention of the prescriber. Computer generated prescriptions can help ensure clarity, avoid misspelling of medication names, and omissions of dosage and duration of treatment. They also provide an audit trail for each prescription. Staff should receive regular training in the use of the system, whether computerised or manual. A policy on security should be developed, enforced and monitored, including the proper use of individual passwords where computers are being used. This should be built into the practice's Caldicott Policy on dealing with confidentiality, and the safe and appropriate use of patient information.

In both prescribing and dispensing practices, repeat prescriptions can be signed by a range of qualified prescribers. These individuals should ensure the prescription is appropriate, safe and that they are confident that any necessary monitoring is taking place and is satisfactory. Repeat prescriptions should only be signed by a prescriber who knows the patient or at least has direct access to the patient's clinical record. A note of any medications that are discontinued at the time of prescription reauthorisation should be made in the patient record and the item removed from the list of repeatable items. Blank prescriptions should never be signed by a prescriber for later completion. Any unused space should be cancelled out under the last drug prescribed by a computerised mechanism or by deleting the space manually.

Synchronising the quantities of medications prescribed so they all run out at the same time is highly desirable (recognising that some are used 'when needed', e.g. analgesics, and in some the quantity is inexact, e.g. skin preparations). The benefits include fewer unwanted medicines being

stockpiled or wasted, less chance for them to cause harm, convenience for patients who will need to visit the surgery and pharmacy less often, and less professional time spent on what is essentially an administrative task.

Full, clear administration directions help patients understand how to use their medications properly and aid compliance. The use of ‘prn’ and ‘mdu’ is no longer considered good practice and should not be used. Exceptions to this, perhaps where dosage is adjusted according to need, e.g. warfarin, should be explicitly stated in the practice policy.

The issue of prescription stock control and reordering, and their safe and secure storage needs to be considered, as prescriptions are controlled stationery and should be treated like blank cheques. All practice staff, including prescribers, should know where signed and unsigned prescriptions are kept and how they are dealt with once they have been signed.

The production and signing of prescriptions are not always easily co-ordinated. The movement of prescriptions around the practice should be systematised and monitored to reduce the risk of mislaid prescriptions, consequent errors and possible theft.

Prescriptions for **methotrexate** and **controlled drugs** should be separated out and brought to the particular attention of the GP.

Points to consider

- Who within the practice is responsible for generating prescriptions?
- Do they have protected time?
- Under what circumstances is referral to the practice-held patient’s notes / records made?
- Does the practice have a policy for the treatment period of repeat prescriptions — bearing in mind that some drugs will be more / less suitable for longer / shorter prescription, and that other factors such as patient’s condition etc. need to be considered?
- Are the quantities of medications on a prescription routinely aligned to provide treatment for the same length of time?
- Are all prescriptions reviewed and signed by a prescriber who knows the patient or at least has direct access to the patient’s clinical record?
- Who is authorised to add medications to, or delete medications from, a patient’s repeat prescription?
- How is the issue of repeats recorded?
- What housekeeping arrangements are in place for removing medications from the current repeat record that have not been used for an agreed period of time, after they have been brought to the attention of the prescriber?
- Are some repeat prescriptions handwritten — if so, what is the procedure for adding and recording the details in the appropriate place(s)?
- What procedure is in place to amend patients’ medication after a hospital admission or a hospital clinic visit?

- Is therapeutic duplication of any items checked for?
- Do all prescriptions produced contain clear and precise instructions on how to take the medicine, bearing in mind the possible exceptions?
- How does the practice deal with urgent requests for prescriptions?
- What happens when prescribers are not in surgery? What happens when the usual prescriber is on holiday?
- What security policy is in place for safe and secure handling of prescriptions? Is it being implemented and audited?
- Are blank and completed prescriptions stored securely?
- Are regular backups made of prescribing records held on computer?

Characteristics of a model repeat prescribing process

- It is clearly defined by written policies and procedures that are regularly reviewed to take into account changes in prescribing arrangements (e.g. supplementary prescribing, repeat dispensing arrangements) and practice developments
- It is overseen and managed by an appropriately trained individual, with deputy and cover arrangements
- All members of staff, including locum prescribers, are trained and fully aware of how the practice repeat prescribing system works, and are aware of their individual responsibilities
- It maintains comprehensive, up-to-date and accurate repeat prescribing information for each patient
- It keeps all information secure and confidential, and all staff are regularly trained in the use of any computerised system
- Computerised systems are kept secure using confidential individual passwords for all users, in line with the security policy of the practice including Caldicott Policies, other requirements of the Data Protection Act and the Freedom of Information Act. Regular backups of the repeat prescribing information are made.
- Information on screens is not visible to unauthorised personnel, patients or representatives, unless specifically designed for that purpose, e.g. CKS 'shared' screens
- It only allows addition of medications to a repeat prescription when the medication has been shown to be beneficial for the patient, and then only by a qualified prescriber
- It only allows the issue of medications that have been appropriately authorised by a qualified prescriber
- All prescriptions are reviewed and signed by an appropriately qualified prescriber who knows the patient or at least has direct access to the patient's medical records
- It explicitly states which medications are not considered suitable for routine repeat prescribing, e.g. controlled drugs, hypnotics, bearing in mind the needs of particular groups of patients such as the terminally ill
- A clear audit trail exists for the inclusion / removal of all medications to the patient's repeat prescribing list
- There is an agreed process for reviewing all changes in medication following hospital inpatient or outpatient attendance, etc., before making changes to the repeat prescription

- It clearly defines an appropriate interval of reauthorisation for repeats, with a proper system to call patients for review. Regular clinical and medication reviews take place, including an assessment of concordance
- Prescriptions are produced accurately, providing full administration instructions, also maximising the synchronicity of items and avoiding therapeutic duplication
- The frequency of medication supply is kept within auditable limits so that any abuse of the system can be quickly identified, investigated and eliminated where appropriate
- Quantities prescribed take into account what each patient needs, the nature and stability of their clinical condition, patient safety and convenience, avoidance of waste, likely complications of treatment and any necessary monitoring
- Regular assessment of the patient's condition(s) is made; the continuing need for the medication being prescribed; continued benefit from treatment being derived; adverse drug reactions and drug interactions are picked up; and all necessary monitoring is being carried out
- Partnership with the patient is utilised to ensure maximum concordance and satisfaction with the treatment option, and early feedback of any potential problems
- Information is readily available to help patients and carers understand the system (ordering, collecting prescriptions, how to request help, reviews, etc.), and considers the needs and convenience of carers, including those looking after more than one patient. Comments received are carefully considered and, where appropriate, acted on
- Quality is regularly assessed. Learning from adverse incidents, including complaints and 'near-misses' are used to improve and evolve the system
- Adverse drug reactions involving black triangle drugs are reported via the 'Yellow Card Scheme'

Quality assurance - Better practice

Practices should consider producing and maintaining a repeat prescribing policy. The quality and the robustness of the system should be audited on a regular basis to ensure the policy is operating as intended, as should the quality of information recorded.

Points to consider

- Does the practice have a written repeat prescribing policy?
- Does the policy describe the responsibilities of all staff involved?
- Are all staff, involved in the repeat process, consulted during policy production?
- Are the views of patients / representatives sought and incorporated?
- Has a risk assessment of the process been undertaken, and any necessary interventions made?
- Is the policy regularly reviewed?

- Does the practice monitor, and share learning from, near misses and critical incidents to reduce errors?
- Are Serious Untoward Incidents (SIs) reported to the CCG?
- Are regular audits performed to assess the quality of the process?
- Are there systems in place to guarantee both the quality and security of information held?
- Is staff training provided, and regularly updated, on the process and use of the systems?
- Is information readily available for patients/representatives on how the process works?
- Are people whose first language is not English catered for?
- Is discrimination avoided against people who have impairment to either their physical or psychological functioning?

Managing information about medicines within the practice

a) Safety alerts, drug recalls, CMO advice etc.

The Central Alerting System (CAS) is a web-based cascading system for issuing patient safety alerts, important public health messages and other safety critical information and guidance to the NHS and others, including independent providers of health and social care. Alerts available on the CAS website include safety alerts, CMO messages, drug alerts, Dear Doctor letters and Medical Device Alerts. Useful links:

The Medicines and Healthcare products Regulatory Agency: http://gov.uk/mhra

NHS England: http://www.england.nhs.uk/ourwork/patientsafety/psa/

National Reporting & Learning System:
Email patientsafetyhelpdesk@nrls.nhs.uk

Each alert / notification sets out actions to be taken within given timescales.

b) NICE Guidance

The National Institute for Health and Clinical Excellence produces guidance on the last Wednesday of each month. The guidance may be in the form of a:-

- Technology Appraisal Guidance (TAG)
- Clinical Guideline
- Public Health Guidance
- Interventional Procedures

c) Local prescribing advice

The Pharmaceutical Advisers produce regular newsletters and ad hoc information about medicines.

Good practice - Practices should ensure that mechanisms are in place to:-

- Receive medicines information and assess its relevance to the practice
- Determine what actions are necessary; Communicate actions to colleagues
- Confirm that actions have been taken; Record that the alert has been completed and file.

The CCG may seek assurance periodically that actions have been undertaken.

A Guide to the Medication Review Process

Contents **page**

Originally prepared October 2003; Reviewed March 2010, November 2015, November 2017
Next Review November 2019

Medicines Review Top Tips

- Set aside protected time to undertake the review
- Prioritise patients in necessary – target those on multiple therapies or high risk medicines (eg warfarin, benzodiazepines, lithium etc – see p23 for complete list) first
- Invite the patient to attend
- Include all repeat items and regular acute prescriptions in the review. If known, also include over the counter medicines
- Make sure all the information on blood tests, hospital letters etc are to hand
- Undertake the review. Include:-
    - Is/are the condition(s) optimally controlled?
    - Are guidelines or formularies being followed? If not give reason.
    - Has non-drug intervention, if applicable, been tried?
    - Is the patient regularly taking any other medication or remedy that has not been prescribed e.g., herbal and OTC medications?
    - Is there potential for drug interactions or side effects? If so, is the risk minimal, moderate or serious enough to require discontinuation?
    - Can the regime be simplified either by stopping a drug, amending dosages, dose times or formulations?
    - Has the required monitoring been done? Do the results indicate the need for a dosage amendment or discontinuation of a drug?
    - Have there been any recommendations from secondary care? Have these been implemented? If not give a reason. Do they involve shared care? If so, has an agreement been signed?
    - Is the prescription written generically where appropriate?
    - Is the patient on the most cost-effective treatment?
    - Does the repeat need to be continued for the next 6 or 12 months?
- Discuss changes with the patient
- Amend records and agree a future review date.

Medicines Review Medicines Review

Introduction

The NSF for older people defined standards for health and social services to ensure high quality care. A key document within the NSF overviews the medicines-related aspects of the care of older people, and specifies a requirement that all people over 75 years should have their medicines reviewed at least annually, and those taking four or more medicines should have a review 6-monthly. Additionally, the QoF Medicines Management indicator MM5 states that “A medication review is recorded in the notes in the preceding 15 months for all patients being prescribed four or more repeat medicines.” MM9 states that ““A medication review is recorded in the notes in the preceding 15 months for all patients being prescribed repeat medicines.”

Other patients should also be reviewed on a regular basis. The principles set out below apply to any medication review.

The document should be read in conjunction with the local guidance on the safe and effective transfer and use of information about medicines in general practice.

Clinical Medication Review

Clinical medication review is the process where a health professional reviews the patient, the illness and the drug treatment ideally during a consultation. It involves evaluating the therapeutic efficacy of each drug and the progress of the conditions being treated. Other issues such as compliance, actual and potential adverse reactions, interactions and the patient’s understanding of the condition and its treatment are considered when appropriate. The outcome will be a decision about the continuation (or otherwise) and monitoring of the treatment. (Zermansky AG Et Al., BMJ,2001;323:1340)

Aim of this document

The aim of this document is to simplify and standardise the process and protocol for a medication review across practices within Milton Keynes.

It should be applied to any patient who is regularly taking medication. In many instances, the practice may choose to initially concentrate on patients over the age of 75 and on 4 or more medications. How this process is implemented in each practice will be dependent on review systems already in place and the availability of pharmaceutical and nursing support. It is designed to be used by all clinicians when conducting a clinical medication review.

Some of the patients will be having regular CHD, diabetic, hypertension and respiratory reviews with the practice nurses and therefore they could conduct some of the reviews. Each practice should have a system by which all relevant clinical staff are involved in the review process. Some practices may choose to employ a pharmacist to carry out the reviews. They should be encouraged to use this document as the basis for their review.

What constitutes a medicine?

When conducting a full clinical medication review **all** repeat items and regular acute prescriptions should be included in the review. In addition to oral/systemic medicines, other items that should be included in the review are:

- Emollients, creams and bath additives
- Syringes, pen needles, lancets, test strips and needle clippers
- Dressings
- Stoma bags and appliances etc
- Catheters and bags etc
- Urostomy bags etc
- Rubefacients
- Lubricating eye drops and gels
- Hosiery
- Gluten free products
- Sip feeds
- Spacer devices

Patient selection

It is necessary to set the criteria for review and also the mechanism for calling patients in for review if that is appropriate. (A thorough review can only take place in conjunction with the patient but this may not always be practical).

As a minimum, practices should be meeting NSF targets as described above. Searching the computer system can identify patients by age and number of medicines. Opportunistic review should also take place and all members of the Primary Healthcare Team (PHCT) including community pharmacists should be encouraged to identify patients who may benefit from a medication review (see screening below).

Screening

In many practices there will be a large number of patients who should be reviewed but some will have greater need than others. In order to help practices prioritise their review process, a set of questions has been suggested which can be used as a screening tool for identifying patients at greatest risk. This tool can be used by any member of the primary care team, receptionists and community pharmacists to help to identify those patients at greatest risk. It is also useful for social care staff. These patients can then be given highest priority for a medication review.

Screening Questions

1. Do you need help getting a regular supply of medicines? Y/N
2. Do you sometimes forget to take the medicines in the way the doctor wants you to? Y/N
3. Are there some medicines that you cannot remove from their container? Y/N
4. Do you think you could get more help from your medicines? Y/N

A “Yes” answer to any of these questions highlights the need for a face to face medication review and these patients should be given top priority and referred to the practice pharmacist or GP for a medication review.

“High risk drugs”

A further means of screening is to consider the drugs that the patient is taking. Patients having prescriptions for the following drugs should preferably be called in for face-to-face review: -

Warfarin
Benzodiazepines
Phenytoin
Lithium
Barbiturates
Digoxin
Amiodarone
Disease modifying drugs for rheumatoid arthritis
Insulin

The Clinical Medication Review
Once patients have been referred for a review they will have a clinical medication review. This can be broken down into four stages. The process, in adapted form, may also be used when the patient is not present. The first stage will involve a GP or practice pharmacist. The second stage may involve a nurse, pharmacist or GP, as may the third stage, each working within his/her own area of expertise.

Stage 1, data collection

1. Identify drugs being taken on a regular basis.
2. Identify indications
3. Ensure information has been captured following hospital admissions or out patient appointments

Stage 2, to be completed in consultation with the patient.

1. Confirm details of all drugs being taken
2. Confirm that indications are still valid
3. Assess compliance and adherence
4. Confirm understanding of medications and indications
5. Identify any unaddressed problems

Useful questions to ask the patient can be found in Appendix 1.

Stage 3, review of active medical problems and medications

1. Is/are the condition(s) optimally controlled?
2. Are guidelines or formularies being followed? If not give reason.
3. Has non-drug intervention, if applicable, been tried?
4. Is the patient regularly taking any other medication or remedy that has not been prescribed e.g., herbal and OTC medications?
5. Is there potential for drug interactions or side effects? If so, is the risk minimal, moderate or serious enough to require discontinuation?
6. Can the regime be simplified either by stopping a drug, amending dosages, dose times or formulations?
7. Has the required monitoring been done? Do the results indicate the need for a dosage amendment or discontinuation of a drug?
8. Have there been any recommendations from secondary care? Have these been implemented? If not give a reason. Do they involve shared care? If so, has an agreement been signed?
9. Is the prescription written generically where appropriate?
10. Is the patient on the most cost-effective treatment?
11. Does the repeat need to be continued for the next 6 or 12 months?

(See Appendix 2 for tips on reviewing therapeutic areas)

Stage 4, completion

1. Discuss and agree any recommendation for change.
2. Consult with the relevant GP and agree course of action if appropriate.
3. Implement change; amend patient notes.
4. If appropriate, agree a future review date.

Recording on the computer

All clinical interventions should be recorded on the computer and if information needs to be searched to determine whether targets have been reached the information

should be recorded in a searchable fashion. Read Codes used should be standardised across the CCG.

For review of a list of patient's medication in absence of the patient **8B3h**

For treatment review in absence of patient but with reference to clinical records: **8B3S**

Clinical medication review in presence of patient and access to clinical record : **8B3V**

SystmOne

To record that you have performed a medication review

1. Do one of the following:

- click the icon with the tablet bottle and paper at the top of the repeat templates view
- select "Record that a medication review has been performed" at the foot of the Create/amend Repeat template dialogue
- click the blue" Record medication review Read code (XaF8d) link at the top of the Repeat Templates view or Repeat Prescribing screen

2. Type any notes you would like to record on the Medication Review notes dialogue.

The Read code " medication review done (XaF8d) is added to the patient record along with any review notes entered. The text in the yellow bar shows when the last recorded medication review was performed and who performed it.

Remember to re-authorise the repeat templates too.

Guidance for non-medical staff conducting the medication review

The GP will need to authorise any suggested changes. In order to do this, a proforma is available (Appendix 3)

Audit and validation

If practices are employing a pharmacist to undertake medication reviews, they may find it helpful to have a summary record of interventions as well as the details on individual patients. A Clinical Medication Review Intervention Record is available at Appendix 4.

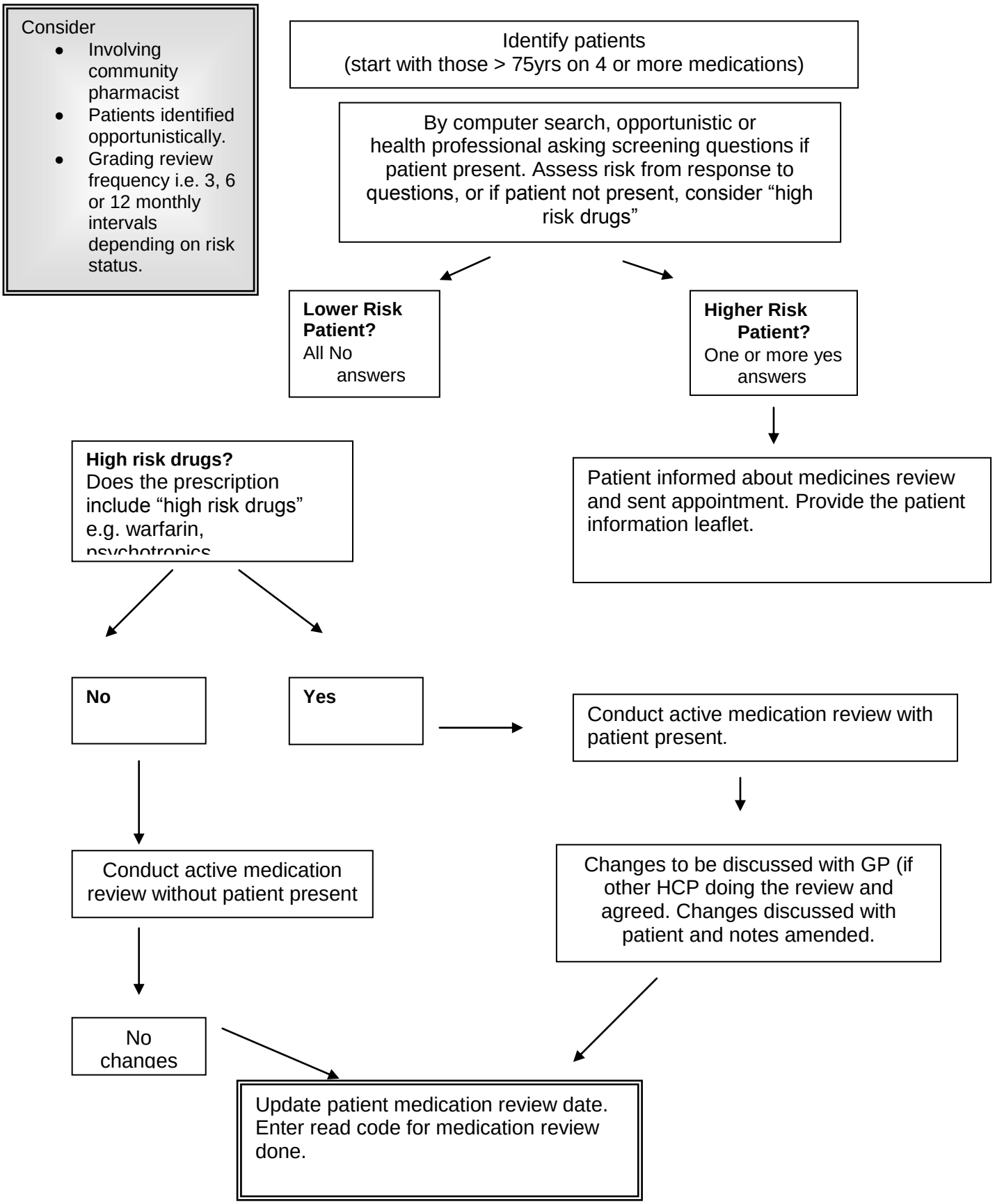
Guidance for practices employing a pharmacist to undertake medication reviews

In some instances, practices may choose to employ a pharmacist directly to undertake medication reviews. If this is done independently of the CCG Pharmaceutical Advisers, you should ensure that the person meets the following criteria:-

- Registered with the General Pharmaceutical Council
- Evidence of Post-Registration, continuing professional development
- Relevant Post-Graduate qualification in clinical pharmacy (desirable)

A sample confidentiality statement can be found at Appendix 5

Medication Review Algorithm



Useful questions to ask the patient: -

1. Do you understand what your medicines are for? Y/N

2. Do you understand when to take your medicines? Y/N

Questions 1 & 2 are intended to find out whether the patient has an understanding of what the medications are for and whether they understand when and how frequently to take them.

3. Do you find it easy to take your medicines? Y/N

Question 3 is intended to find out whether the patient has any difficulty in swallowing tablets, capsules, measuring out liquids or in getting tablets out of containers or blister packs.

4. Do you always remember to take your medicines? Y/N

Question 4 is intended to find out whether the patient forgets regularly or just occasionally. To check this, ask if they have a method for remembering e.g. always taken with the morning cup of tea.

5. Are you always able to order all your medications at the same time? Y/N

Question 5 is intended to find out whether there are problems in the way the repeats are set up on the computer e.g. some items at 56 days supply and others at 28 days supply, thus creating unnecessary requests for prescriptions.

6. Are the medications currently prescribed by your GP the only medicines you take? Y/N

Question 6. Many patients purchase or obtain medicines from other sources e.g. OTC medicines, herbal or homeopathic.

7. Do you return excess, unwanted or leftover medicines to the pharmacy? Y/N

Question 7. Hoarding and excessive ordering can lead to problems. Patients may have medicines changed after a hospital discharge. In order to avoid confusion they should be encouraged to return all unwanted or excess medication to their pharmacy for disposal.

8. Are you comfortable with your current medications? Y/N

Question 8 is intended to find out whether the patient has any other problems with medications e.g. side effects or uncontrolled symptoms

Check list for medication reviews

1. Is the medicine still needed?

2. Generic substitution
a) Likely to make a cost saving now
b) Likely to make a cost saving in near future?

3. Period of supply
a) Are all oral medicines given for same period?
b) Do amounts correspond to calendar packs available?

4. Strength optimisation
a) Check that the patient has not been prescribed 2 x lower dose when 1 x higher dose is less expensive. If it is cheaper to prescribe 2 x lower strength, then ScriptSwitch will advise.

5. Dose alteration
a) Does the dose conform to SmPC?
b) Any reduction in elderly/renal/hepatic failure?
c) Is the dose and frequency appropriate and specified clearly?
d) Could a dose reduction be made?

6. Drug interactions/Adverse Drug Reactions
a) Are there any possible drug interactions with other prescribed medication?
b) Any evidence of adverse drug reactions?

7. Incremental prescribing
a) Is there any evidence of incremental prescribing i.e. drugs given to counteract the side effects of others which may no longer be appropriate?
b) Are there any "double therapies" e.g. two analgesics, two hypnotics etc.?

8. Monitoring required
For full details of recommended biochemical monitoring, please refer to the CCG guidance
a) Do biochemical parameters need checking for:-
Diuretics
Levothyroxine
Amiodarone
ACEIs
Statins

b) Do plasma levels need checking for:-
Digoxin
Theophylline
Lithium
Phenytoin

c) Haematological tests for:-
Iron preparations
Cytotoxics
Mianserin
NSAIDs
Warfarin

9. Factors to think about in each therapeutic area (list is not necessarily comprehensive)

Gastro-intestinal drugs

- Ulcer healing drugs – review initial indication; all patients should be reviewed at the end of acute treatment (4-8 weeks) with a view to stopping treatment or reducing to a maintenance dose.
- Therapeutic substitutions may free up resources e.g. lansoprazole instead of esomeprazole; try suggesting intermittent treatment
- Encourage healthier lifestyle; smoking cessation, asking about alcohol use
- Check effectiveness of drugs for irritable bowel syndrome – prescribe in small quantities until efficacy assessed
- Lactulose is a common source of waste. It is rarely the drug of choice in constipation.

Digoxin

- Does the patient have signs of digoxin toxicity?

Diuretics

- Review the use of high dose thiazides – if used for hypertension, a low dose is effective; if used for oedema, furosemide may be better
- Review doses of diuretics in combination with potassium sparing drug. These are best administered as single agents.
- If potassium supplementation is needed, a potassium sparing diuretic such as amiloride is more effective than potassium chloride.
- Review doses of diuretics in combination with ACEIs or beta blockers. These are often higher than is needed. Prescribing separate ingredients is safer, more flexible and usually cheaper.
- Bendroflumethiazide takes 6 weeks to exert its full effect, so do not switch drug or dose prematurely. Dose of 2.5mg is usually adequate.
- Identify patients on diuretic plus potassium combinations and change to single diuretic. Check U and Es in 3 weeks.
- Watch out for patients on ACEIs and potassium sparing diuretics. This combination produces dangerous hyperkalaemia. Check U and Es and change to single diuretics.
- Bumetanide is ten times more expensive than furosemide and offers no therapeutic advantage in terms of activity, onset, duration and power of diuresis.
- Review patients on high dose loop diuretics and consider whether they should be given an ACEI?

Beta blockers and calcium channel antagonists

- How long ago did the patient have their BP checked?
- Have patients been advised on non-drug treatments – smoking cessation, exercise, weight, diet?
- Check compliance especially in males
- In hypertension, use lowest effective dose of beta blocker e.g. atenolol 50mg Beta blockers improve survival after heart attacks and should be started early and continued long-term except in patients with a contra-indication such as asthma, heart block or uncontrolled heart failure.
- If used for heart failure, has the dose been titrated to the target dose or maximum tolerated dose?
- There is very little difference between the various beta blockers.

- Review the use of combination therapy e.g. co-tenidone and use separate agents
- Change patients on short acting nifedipine onto the modified release or slow release. Prescribe by brand name or as guided by OptimiseRx.

ACE Inhibitors/ Angiotensin II Receptor Antagonists

- Have all patients with heart failure and post MI been considered for ACE inhibitor treatment? Have doses been titrated upwards in patients with heart failure?
- There is little to distinguish between ACEIs in terms of safety and efficacy.
- Avoid potassium sparing diuretics with ACEIs
- Avoid beta blockers (unless initiated by a specialist), NSAIDs, tricyclic antidepressants and other aggravating agents such as verapamil, steroids, excess salt, excess alcohol
- Persistent dry cough is a side effect of ACE inhibitors, particularly in women and non-smokers.
- Angiotensin II RAs should be reserved for those patients who experience prolonged and unacceptable ACE-induced cough

Aspirin

- Do not use for primary prevention. If patient has AF then warfarin may be preferable.
- If the patient is purchasing his/her own aspirin, make a record in the notes.

Nitrates

- Nitrate tolerance can be minimised by using asymmetric dosing (8am and 2pm)
- Change away from SR preparations and use isosorbide mononitrate bd (8am and 2pm)
- How many sublingual GTN tablets or doses of spray is the patient taking?
- Does the patient have the most appropriate formulation for the dose being taken?
- Do patients using GTN patches remove them for a nitrate-free period?

Lipid lowering agents

- Use local guidelines and NICE
- Check cholesterol levels according to the guidance
- Make sure the dose for statins (except atorvastatin) is prescribed to be taken at night because they are more effective taken then.

Respiratory drugs

- It is important to confirm compliance – large numbers of inhalers are returned to “Dump” campaigns.
- Have patients on short acting bronchodilators been considered for inhaled corticosteroids
- Is there a plan to “step down”
- Does the patient have a self-care management plan and peak flow meter?
- Has inhaler technique been checked within the last 12 months?
- Does treatment for COPD fit with the BTS COPD guidelines?

Hypnotics

- Ideally, hypnotics should only be prescribed for a short period of time as specified in the BNF

- Has the original cause of insomnia resolved?
- Has the patient been warned of the problems with continuous use?
- Has the patient been offered a withdrawal regimen?
- Are elderly patients over-sedated and "hung-over" in the mornings?
- Remember that Z drugs are not without side-effects
- Check on alcohol use by the elderly as a remedy for sleeping problems
- Antipsychotics should not be used to induce sleep in the elderly

Antidepressants

- Consider prescribing small quantities at a time.
- Does the patient understand the need to take medication for a considerable period of time even when feeling better?

Migraine treatments

- Confirm diagnosis of migraine
- Consider using aspirin and metoclopramide
- Reduce to the lowest dose possible
- Check compliance – consider the risk of "analgesic headache" in patients taking large quantities of analgesics or triptans
- Consider prophylaxis if more than 4 migraines per month
- Use sumatriptan 50mg as triptan of choice

Atypical antipsychotics

- Check compliance carefully
- Risk assess on-going need for antipsychotics in patients with dementia

Analgesics

- Analgesics are frequently returned in "Dump" campaigns – therefore prescribe small quantities and review need for continuing pain control
- Consider using separate components rather than "co" drugs
- Patients in terminal care often have dosage changed – take care not to over prescribe.

Antibiotics

- Should rarely be prescribed on repeat basis, without the patient being reassessed.
- Remember to use "non-prescriptions" or deferred prescriptions if appropriate

HRT

- Check compliance – high incidence of women stopping taking HRT after a few months.
- Use oral HRT as first line therapy

NSAIDs

- Are frequently returned in "Dump" campaigns – therefore prescribe small quantities and review need for continuing anti-inflammatory control
- Be aware of interactions with warfarin, antihypertensives, diuretics etc
- Mobilisation and exercise may provide more benefit than drugs
- Ibuprofen and naproxen should be considered before other NSAIDs – but simple analgesia e.g. paracetamol may often be adequate for osteoarthritis
- Diclofenac has a higher cardiovascular and renal risk than naproxen
- Consider whether a slow release preparation is really needed.

Topical NSAIDs

- Review efficacy and continuing need for topical NSAIDs
- There is no additional benefit in using a topical preparation as an adjunct to oral therapy.
- All of the topical NSAIDs except benzydamine are contra-indicated in patients in whom aspirin or other NSAIDs induce symptoms of asthma, rhinitis and urticaria.
- If the patient is at risk of side effects from oral NSAIDs, try a cheaper rubifacient such as Intralgin, Algesal or Movelat

Enteral nutrition

- Think "Food First"
- The aim of therapy should be clearly stated prior to initiation e.g. to improve quality of life or prevent deterioration
- Record weight and MUSTR score. There should be a review periodically to assess patient's progress
- Sip feeds are interchangeable for the majority of patients. Prescribe a small number of a range of flavours to allow the patient to assess acceptability
- Energy dense feeds e.g. Fortisip should be prescribed only on the advice of a dietitian
- Assess carefully requests from nursing and residential homes. Are feeds being used to replace meals unnecessarily?

Gluten free foods

- Does the patient have IFR exemption? If not, then prescriptions should not be issued.

Wound Dressings

- Frequency of dressing change varies between products and may vary between wound type and stage of healing. Knowledge of normal changing frequency should indicate appropriate quantities to prescribe. Necessity for very frequent changes may indicate inappropriate product choice
- Use of compression stockings should be encouraged to prevent recurrence of venous leg ulcers
- Prescribe in units of single dressings, not boxes.
- Restrict the use of sterile dressing packs to those few procedures that require a true sterile procedure.
- Monitor carefully requests from nursing homes – prescribe for the individual patient, not to stock the cupboard.
- The Drug Tariff provides comparative prices of dressings.
- Practice Nurses may order stocks electronically via ONPOS

Urinary incontinence and Stoma products

- The script should include full details of the required product to ensure that the correct size and type are provided
- Scripts for a maximum of one month help to minimise waste if the patient's requirements change.
- Monitor use of stoma bags - overuse can indicate inappropriate choice of bag or wrong size
- Monitor for multiple requests from the supplier pr patient.

Appendix 3

Dear Doctor

After a review of the repeat prescription for …… (Patient's name and d.o.b.), may I suggest that you consider the following changes to prescribed medication:-

Drug	Suggested action	Comments	Authorised (Y/N)	Actioned by (with date)

Patient was present at the review Y/N

Signed.....
(Pharmacist)
Date …….

Signed.....
(Doctor)
Date ……..

This record should be retained with the patient's notes. Continue on a second sheet if necessary.

Appendix 4

Clinical Medication Review – Intervention Record

Pharmacist: …….

Date(s): ……

Surgery: ……..

Number of patients reviewed: ……

Drug stopped	**Reason**	**Number**
	drug interaction	
	indication no longer present	
	inappropriate	
	adverse effect or contra-indication	
	therapeutic duplication	
Medication changes		
	safer/ more efficacious drug	
	cost	
	to improve compliance	
	inappropriate formulation	
New drug started		
	new indication	
Dose changed		
	due to side-effects	
	due to results from monitoring	
	to improve compliance	
	to what is actually being taken	
Frequency changed		
	to improve compliance	
	to improve efficacy	
Suggested monitoring		
	biochemical tests for efficacy	
	biochemical tests for side-effects	
	drug level monitoring	
Switch to generic		
Dose optimisation		
Aligning period of supply		
Other – please specify		

Appendix 5

Guidance on Prescribing Gluten Free Products

Gluten free products have ACBS (Advisory Committee on Borderline Substances) approval allowing them to be prescribed for patients with:

- Gluten sensitivity
- Coeliac disease
- Dermatitis herpetiformis

However Gluten free products should not be prescribed on the NHS

A clinician may apply to the CCG Panel if the patient is at risk of dietary neglect. If the application is approved, then the following products may be prescribed:-

Age group	Suggested no. units per month
Child 1-3 years	10
Child 4-6 years	11
Child 7-10 years	13
Child 11-14 years	15
Child 15-18 years	18
Male 19-59 years	18
Male 60-74 years	16
Male 75+ years	14
Female 19-74 years	14
Female 75+ years	12
Breastfeeding	Add 4 units
3rd trimester pregnancy	Add 1 unit
High physical activity level	Add 4 units

400g bread/rolls/baguettes = 1 unit
500g flour mix= 2 units
500g pasta = 2 units.

Appendix 6

Confidentiality Protocol for Pharmacists and Technicians Working with GP Practices

The CCG has a legal obligation not to disclose information of a confidential nature concerning patient's illness and their affairs to any person.

Professional Code of Ethics
Pharmacists are bound by their professional code of ethics issued by the Royal Pharmaceutical Society. As regards confidentiality these state that a pharmacist must respect the confidentiality of information acquired in the course of professional practice relating to a patient and the patient's family. Such information must not be disclosed to anyone without the consent of the patient or appropriate guardian unless the interest of the patient or the public requires such a disclosure. Further elaboration of this principle is to be found in the society's code of ethics. In particular it is worth noting that information relating to the prescribing practices of identifiable doctors or doctor's practices, and other prescribers, is confidential, and must not be disclosed, other than for necessary purposes of the NHS, unless the prescriber has given informed written consent to the disclosure.

Pharmacy technicians do not have a professional code of ethics. However all pharmacy technicians employed by the CCG are required to adhere to the Royal Pharmaceutical Society code.

Sharing Information within the Health Care Team
Pharmacists and pharmacy technicians are employed by the CCG, working at the practices to support the clinical care of their patients at the invitation of the clinicians there. As such they comprise part of the health care team, as defined by the General Medical Council*, for the duration of their attachment. Information concerning particular patients can be shared within a health care team unless a patient objects. A contract will set out details of whom the individual is working for, their lines of responsibility and accountability, the detailed nature of the work they are doing and how information will be shared. Specific consent for information to be shared to allow treatment is not required as patients have implied consent by joining the practice list. However it is good practice for any GP Practice to make sure that patients are aware that personal information about them will be shared within the health care team, unless they object, and the reasons for this.

**The health care team comprises the people providing clinical services for each patient and the administrative staff who directly support those services. Ref GMC*

Use of Anonymised Data
If information for the purposes of audit, research, public health purposes, teaching and training or to plan the delivery of healthcare is required, this information should be kept to the minimum necessary. It may only be passed to other organisations or agencies in anonymised form. Any dissemination of this information must also include the agreement of the practice. It should be pre-agreed as part of the service level agreement or contract

with any practice where the person is working. The default position is NO SHARING of information if this is not pre-agreed.

Patient Identifiable Information
Any data accessed or processed must be for the sole purpose of the tasks set by the CCG Pharmaceutical Advisers. You must adhere to the Caldicott principles that govern access to patient identifiable information. These are as follows

1. Justify the purpose
2. Only use it where absolutely necessary
3. Use the minimum that is required
4. Access is on a strict need to know basis
5. Everyone must understand their responsibilities
6. Understand and comply with the law

You are responsible for personal information about patients and must make sure it is effectively protected against improper disclosure at all times both within and outside the practice. Only anonymised data may be taken off-site from a GP practice unless there is explicit written approval given by the CCG's Caldicott Guardian and the practice themselves.

The wilful or negligent disclosure of confidential information may result in prosecution or action for civil damages under the Data Protection Act.

Computer Systems
Wherever possible work should be prepared and stored on the practice's clinical system. Protection of this data will be covered by the practice's security policy. If you need to work on another computer system, e.g. a laptop, you must not take any patient identifiable material away from the practice to work on, unless in encrypted form. If you need to take printouts of the patient record in order to visit patients away from the practice these must be returned promptly to the practice. They should be disposed of safely once they are no longer required.

Disclosing Patient Identifiable Information in the Public Interest

If you feel that you must disclose information in the public interest then, in the first instance, the concern should be raised with the practice and their Clinical Governance Lead. Then is it recommended that you consult with the Caldicott Guardian before disclosing any information.

If you are uncertain over any aspects of confidentiality or handling of personal data, you should seek advice from the Head of Prescribing and Medicines Management.

I have read and agree to abide by the Milton Keynes CCG Confidentiality Protocol for Pharmacists and Technicians Working with GP Practices.

Name: Signed:

Date:

Original to be kept at CCG Office: Employee to keep a copy

Drug Monitoring Requirements – Initiation and Maintenance

This guidance relates to drugs commonly used in primary and intermediate care and mental health. It is not an exhaustive list of drugs that require monitoring. Further information on these and other drugs should be obtained from the British National Formulary and Summary of Product Characteristics (SPC) for each drug. Special care is necessary in pregnancy. Please refer to the latest BNF for details of potentially hazardous drug interactions. Clinical responsibility lies with the prescriber. The Pathology Users Handbook is available from Milton Keynes Hospital or their intranet site. The document provides guidance on choice of collection bottle, availability of services etc.

It is the responsibility of the prescribing clinician to undertake all tests necessary to ensure the medicine can be used safely. In limited situation, community based services may be unable to do the tests and may, exceptionally, ask the GP to do so.

Drug	Biochemical monitoring parameter			Actions required if abnormal results	Additional notes	Reference Source
	Baseline	At initiation	Maintenance			
ACE Inhibitors and angiotensin II antagonists	Measure renal function (serum creatinine and estimated glomerular filtration rate) and serum electrolytes before starting treatment.	Check renal function and serum electrolytes 1–2 weeks after starting treatment and 1–2 weeks after each dose increase. Thereafter, check renal function and serum electrolytes annually. Check blood pressure 4 weeks after each dose titration. For people who are at higher risk of hyperkalaemia or deteriorating renal function (for example those with peripheral vascular	Post-MI and hypertension: Periodic renal function and BP monitoring should be conducted at least annually. Heart failure: Serum urea, creatinine and electrolytes every 3 months (and more often if patient is taking combined loop and thiazide diuretic therapy or aldosterone antagonist CKD: BP every 3-6 months and renal function at least annually	Some increase in serum creatinine and potassium is expected after starting or increasing the dose of an angiotensin-converting enzyme (ACE) inhibitor or an angiotensin-II receptor antagonist (AIIRA). **If the eGFR decreases by less than 25%, or serum creatinine increases by less than 30%:** Do not modify the ACE inhibitor/AIIRA dose and recheck levels in a further 1–2 weeks. **If eGFR decreases by 25% or more, or serum creatinine increases by 30% or more:** Investigate other causes of deteriorating renal function, such as volume depletion. Stop or reduce the dose of the	Potassium sparing diuretics should be used with extreme caution in patients treated with an ACE Inhibitor. See BNF for additional guidance.	NICE Guideline CG 182 *Chronic kidney disease: 2014* NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014

		disease, diabetes mellitus, or pre-existing renal impairment or older people), consider checking renal function and serum electrolytes sooner (within 1 week).		following drugs (where appropriate): Nephrotoxic drugs (such as nonsteroidal anti-inflammatory drugs); Vasodilators (such as calcium-channel blockers, nitrates); Potassium supplements or potassium-sparing diuretics; Diuretics (consider dose reduction if the person is hypovolaemic). If the decrease in eGFR or the increase in serum creatinine persists despite these measures: Stop the ACE inhibitor or AIIRA therapy, *or r*educe the dose to a previously tolerated lower dose and recheck levels in 5–7 days. (Add an alternative antihypertensive medication if required). **If serum potassium is 5.0 mmol/L or above:** Investigate other causes of hyperkalaemia and treat accordingly. Stop or reduce the dose of potassium-sparing diuretics (amiloride, triamterene and spironolactone) or nephrotoxic drugs (such as nonsteroidal anti-inflammatory drugs). **If serum potassium persists between 5.0 and 5.9 mmol/L despite these measures,** reduce the dose of ACE		

				inhibitors or AIIRA to a previously tolerated lower dose and recheck levels in 5–7 days. **Stop ACE inhibitors or AIIRAs if serum potassium persists above 6 mmol/L despite these measures.** Consider referral to a dietitian: a low-potassium diet (up to 2 g/day), or dietary advice may help resolve hyperkalaemia.		
Amiodarone	**Amiodarone is always initiated in secondary care,** where the following baseline assessments are performed: Thyroid function tests. Liver function tests. Serum electrolyte and urea measurement. Chest radiography. Electrocardiography.	Specialist initiation advised	Regular monitoring is required for the following: Thyroid function tests — every 6 months and for 12 months after discontinuation. Liver function tests every 6 months. Serum electrolyte and urea measurement every 6 months. Electrocardiography every 12 months. The manufacturer recommends annual eye examinations; however, expert opinion suggests that these are only	If biochemical results appear borderline, repeat test in 6 weeks. If no improvement, refer patient back to specialist Symptoms suggestive of pulmonary toxicity or hyperthyroidism require urgent specialist referral. Discontinue treatment if severe liver function abnormalities or clinical signs of liver disease develops.	Thyrotoxicosis type I can occur years after stopping amiodarone (long T½). Clinical assessment is unreliable – 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 discontinued	NICE CKS accessed 16/11/15 Cordarone X SPC accessed 16/11/15 UKMI Monitoring Guidance v2014

			necessary for people with visual symptoms.			
Antipsychotics excluding Clozaril (secondary care only)	Antipsychotics are initiated in secondary care, where baseline measurements are normally taken.	Baseline measurements (taken in secondary care) include: Body weight. Serum electrolytes and urea. Full blood count. Blood lipids. Plasma glucose. Creatinine phosphokinase. Blood pressure. Not required for amisulpride, aripiprazole, trifluoperazine, and sulpiride. Electrocardiography. Not required for people taking conventional antipsychotic doses and without any evidence of other predisposing factors, such as	Regular monitoring is required in primary care for: Body weight 3 months after starting treatment, then every 12 months, or more often if the person is gaining weight rapidly. Serum electrolytes and urea including creatinine and estimated glomerular filtration rate every 12 months. Full blood count every 12 months. Blood lipids 3 months after starting treatment, then every 12 months. Plasma glucose 4 to 6 months after starting treatment, then every 12 months. Additionally for	Stop therapy if neutrophils fall below $1.5x10^9$/L Stop therapy if Neuroleptic Malignant Syndrome (NMS) suspected Stop if LFTs indicate hepatitis (transaminase x3 normal) or functional damage **Avoid stress at venepuncture to avoid raising prolactin levels**	Levels reduced by smoking and carbamazepine The CSM has advised that olanzapine and risperidone are associated with an increased risk of stroke in elderly patients with dementia People taking clozapine are managed exclusively in secondary care. Clozapine can cause neutropenia or agranulocytosis, and frequent monitoring of the full blood count is required (weekly for 18 weeks after starting treatment, then every 2 weeks for the next 18 weeks, and then every 4 weeks	Maudsley Prescribing Guidelines 2012 NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014

		relevant personal or family history, co-prescription of QT-prolonging drugs, or electrolyte imbalance. Prolactin. Not required for aripiprazole, clozapine, quetiapine, olanzapine (less than 20 mg daily), . Liver function tests. Not required for amisulpride or sulpiride.	olanzapine repeat after the first month of treatment. Ask about symptoms of hyperglycaemia (such as polydipsia, polyuria, and increased appetite). Check blood pressure frequently during dose titration. Not required for amisulpride, aripiprazole, trifluoperazine, and sulpiride. Electrocardiography after dose changes. Ideally, also annually. Mandatory for haloperidol, and pimozide; not required for antipsychotics with no effect, or a low-to-moderate effect on the QT interval, and no other risk factors for arrhythmia. Prolactin 6 months after starting treatment, then every 12 months. Also ask about symptoms of raised prolactin (these include low		thereafter). This is carried out by the clozapine monitoring service.	

			libido, sexual dysfunction, menstrual abnormalities, gynaecomastia, and galactorrhoea). Not required for aripiprazole, clozapine, quetiapine, or olanzapine (less than 20 mg daily). Liver function tests every 12 months. Creatinine phosphokinase measure again only if neuroleptic malignant syndrome (NMS) is suspected.			
Azathioprine	Azathioprine is always initiated in secondary care by a specialist. However, treatment may be continued and monitored by a general practitioner		Full blood count every 2 to 4 weeks for 2 months and then every 4 to 8 weeks thereafter Liver function tests weekly for 6 weeks, then every 2 weeks until the dose is stable for 6 weeks, then monthly. Once the maintenance dose has remained stable for 6 months,	Lymphocytopenia should be anticipated and monitored. Neutropenia is NOT expected and should prompt immediate cessation of treatment. Withhold treatment until discussion with specialists if WBC < 3.5 Neutrophils <2 Platelets<150 or A > 2-fold increase in AST, ALT or ALP above the upper limit of normal	Contact the specialist team or consultant if any of the following occur:- 1.Signs or symptoms of toxicity (for example nausea, vomiting, diarrhoea, rash, oral ulceration, abnormal bruising, bleeding, or severe sore throat). If toxicity is suspected, withhold the treatment and	NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014

			consider 3 monthly monitoring. Urea and electrolytes, including creatinine every 6 months	or Mild to moderate renal impairment (mild = eGFR 20–50 mL/minute; moderate = eGFR 10–20 mL/minute) or Rash or oral ulceration If abnormal bruising or sore throat, withhold until FBC available If MCV >105 investigate and if B12 or folate low, start appropriate supplementation.	immediately discuss with the specialist in secondary care. 2.Abnormal laboratory results 3. Intolerance to or adverse effects from medication. Increase in disease activity. 4.Initiation of potentially interacting medications. 5.Non-compliance.	
Carbamazepine	A full blood count, liver function tests, and urea and electrolyte measurements should be done before starting treatment	.	In Bipolar Disorder – NICE suggests U&Es, FBC, serum levels checked every 6 months. In addition, plasma glucose, lipid profile (if over 40 years), BP, weight and height In epilepsy – FBC, U&E, liver enzymes, vitamin D levels and other tests of bone metabolism every 2-5 years for adults taking enzyme-inducing drugs	Stop treatment if leucopoenia develops that is severe, progressive, or accompanied by clinical symptoms (e.g. fever or sore throat), or if there is any evidence of significant bone marrow depression. Stop treatment immediately if liver dysfunction develops If hypernatraemia is suspected, reduce the dose or stop carbamazepine and manage according to severity of symptoms, duration, and state of hydration.	Serum carbamazepine levels should not be routinely monitored unless toxicity is suspected	NICE CKS accessed 16/11/15 NICE CG 137 NICE CG 38

Carbimazole	Thyroid function tests A full blood count, white cell count and differential. Liver function tests.	Specialist initiation advised	TFT should be checked every 4 to 6 weeks and therapy titrated against levels until maintenance dose of 5 to 15mg achieved; thereafter recheck every 3 months. If used long term then annual monitoring once stable FBC every 3 months If patient is on anti-thyroid therapy, please state on form and lab will do appropriate tests.	Check white cell count if any evidence of infection. Stop immediately if leucocyte count falls to <1500x10^6/L or neutrophil count to <500x 10^6/L Regular blood counts should be carried out in patients who may be confused or have poor memory.	Patients should be warned to monitor for clinical symptoms of neutropenia eg sore throat, mouth ulcers	Consensus statement for good practice and audit measures in management of hypothyroidism and hyperthyroidism BMJ 1996; 313:539-544 UKMI Monitoring Guidance v2014
Ciclosporin	Ciclosporin is always initiated in secondary care by a specialist. However, treatment may be continued and monitored by a general practitioner	Creatinine and BP every 2 weeks until dose has been stable for 3 months then monthly. FBC and LFTs every month until dose stable for 3 months.	U&Es, Creatinine and BP all monthly FBC monthly LFTs every 3 months Serum lipids every 6 months	Withhold treatment until discussion with specialist if: - Creatinine rises by 30% of baseline Abnormal bruising Potassium rises above normal range Significant rise in lipids Platelets <150 If a >2-fold increase in AST, ALT or ALP (above upper limit of normal) withhold until FBC result available If BP rises above 140/90, discuss with specialist	Treat BP before stopping ciclosporin. If BP cannot be controlled, stop ciclosporin and obtain BP control before restarting ciclosporin. Prescribe as consistent brand	NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014
Corticosteroids	Before initiating treatment with long-		**Blood pressure** monitor at every	Check for new onset of diabetes 1 month after initiation of oral corticosteroids, then every 3 months thereafter. If		NICE CKS accessed

	term oral corticosteroids, obtain baseline blood pressure, body weight, height (children and adolescents), ophthalmic examinations (consider advising the person to see an optician for baseline assessment), and levels of glucose (fasted), triglycerides, and potassium. Document person's history of chickenpox. Advise those with no history to avoid close contact with people who have chicken pox or shingles and to seek urgent medical advice if they are exposed.		appointment and treat if necessary. **Body weight** monitor regularly, and offer weight management advice if necessary. **Triglycerides and potassium** check blood concentrations 1 month after initiating oral corticosteroids, then every 6–12 months thereafter. Check for new onset diabetes 1 month after start of therapy and every 3 months	possible, dipstick tests urine for glucose at each clinic visit. Monitor people with confirmed diabetes more closely. Their oral antidiabetic drugs may need to be increased, or insulin therapy started. Offer bisphosphonates to prevent osteoporosis in people who have been taking oral corticosteroids for more than 3 months, or who are likely to do so, and who are: • 65 years of age or more. • Less than 65 years of age *with* a previous fragility fracture - • Less than 65 years of age *without* a previous fragility fracture *and* a T-score of –1.5 or less. Organize a dual energy X-ray absorptiometry (DEXA) scan for people less than 65 years of age with no previous fragility fracture who have been taking oral corticosteroids for 3 months or more, or who are due to start a course that is likely to last for 3 months or more. Consider starting treatment if there is a long wait for dual energy X-ray absorptiometry (DEXA) scanning. If drug treatment is not indicated because the T-score is between 0 and –1.5, repeat the DEXA scan in 1 to 3 years if corticosteroid use continues. Refer premenopausal women and men who are found to have osteoporosis to a specialist for further investigation and management. Perform a falls risk assessment, where appropriate, and advise those at increased risk of fractures.		16/11/15 UKMI Monitoring Guidance v2014
Digoxin	Renal function Potassium level	After 7 days, then periodically assess		Elderly patients, those with renal dysfunction and patients taking	Routine monitoring of serum digoxin is	NICE CKS accessed

		renal function, potassium		digoxin and a diuretic should have their serum potassium monitored **Adjust dose in renal failure**	not recommended Consider checking serum digoxin levels (sample 6-9 hours post oral dose) when: The person experiences adverse effects suggestive of toxicity (such as confusion, nausea, anorexia, palpitations or disturbance of colour vision, vomiting & diarrhoea). Other factors may affect the serum digoxin level, such when an interacting medicine is added or withdrawn (for example amiodarone, diltiazem, or verapamil) or deteriorating renal function. Poor adherence is suspected. Toxicity can occur even when the serum digoxin concentration is	16/11/15 UKMI Monitoring Guidance v2014

					within the therapeutic range, and results should always be interpreted in the clinical context.	
Diuretics (loop and thiazides)	Measure renal function and serum electrolytes before starting treatment.	Check renal function and serum electrolytes 1–2 weeks after starting treatment and 1–2 weeks after each dose increase. Earlier monitoring (after 5–7 days) may be required for people with existing renal impairment or those taking a combination of a diuretic plus an angiotensin-converting enzyme inhibitor, an angiotensin-II receptor antagonist, or an aldosterone antagonist. For people receiving a combination of a loop diuretic and a thiazide: Check renal function within 5 days of starting combination treatment and	Once treatment is stable, measure renal function and serum electrolytes at least once every 6 months.	If the serum creatinine level increases by more than 20% of baseline or the estimated glomerular filtration rate decreases by more than 15% of baseline, re-measure renal function within 2 weeks. If the potassium level decreases to less than 3 mmol/L (or 4 mmol/L in high-risk people), review diuretic treatment. People at high risk of cardiac arrhythmias with even mild hypokalaemia include: Those taking digoxin or drugs that prolong the QT interval (such as amiodarone). Those with paroxysmal arrhythmias, unstable angina, or chronic liver disease. If the potassium concentration decreases to less than 2.5 mmol/L (or 3.5 mmol/L in		NICE CKS accessed 16/11/15

		recheck every 5–14 days, depending on the person's stability. Monitor weight and hydration status — if diuresis is extensive, consider earlier testing of renal function.		high-risk people), seek specialist advice urgently.		
Fibrates	Lipid profile Creatine kinase in patients with pre-disposing factors for rhabdomyolysis ie • renal impairment • hypothyroidism • alcohol abuse • age > 70 years • personal or family history of hereditary muscular disorders • previous history of muscular toxicity with another fibrate or HMG-CoA reductase inhibitor Gemfibrozil – lipid profile, full blood		Creatine kinase should be measured if muscle symptoms are experienced LFTs every 3 months for first year **Gemfibrozil** – FBC every 3 months for first year. Periodic serum lipids – sometimes a paradoxical increase of total and LDL cholesterol can occur in patients with hypertriglyceridaemia	Treatment should be discontinued if serum transaminase concentration rises to, and persists at, 3 times the upper limit of the reference range. Discontinue treatment if myopathy is suspected or diagnosed and the Creatine kinase is markedly elevated (>5 x upper limit of normal)		NICE CKS accessed 16/11/15 Lopid SPC accessed 16/11/15

	counts, LFTs					
Gold (sodium aurothiomalate)	Gold is always initiated in secondary care by a specialist. However, treatment may be continued and monitored by a general practitioner	Oral: FBC Differential WCC Urinalysis for blood and protein U&Es LFTs Injection: FBC Differential WCC Urinalysis for blood and protein U&Es Serum creatinine LFTs	Monthly FBC and urinalysis FBC and urinalysis at time of each injection. It is acceptable to work one FBC in arrears	Withhold treatment until discussion with rheumatologist if: - WBC <3.5 Neutrophils <2 Platelets <150 Proteinuria 2+ or more Eosinophilia >0.5x10^9/l Rash or oral ulceration occurs. If abnormal bruising or sore throat – withhold until FBC available If diarrhoea occurs with oral treatment, increase fibre content of diet / add fibre supplements. May need to reduce dose or stop if severe	Ask patient about presence of rash or oral ulceration at each visit or prior to next injection There is an increased risk of toxicity with other nephrotoxic and myelosuppressive drugs **In addition to absolute values for haematological indices, a rapid fall or consistent downward trend in any value should prompt caution.**	NICE CKS accessed 16/11/15
Hydroxychloroquine	Hydroxychloroquine is always initiated in secondary care by a specialist. However, treatment may be continued and monitored by a general practitioner		All patients: The Royal College of Ophthalmologists recommends an annual review; either by an optometrist, or by enquiring about visual symptoms, rechecking visual acuity, and assessing for blurred vision using the reading chart.	Stop medication if patient develops blurred vision or experiences changes in visual acuity and refer to ophthalmologist Adjust dose if impaired renal or liver function Obese patients should be dosed on the basis of ideal body weight to avoid excessive dosage.		NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014
Leflunomide	Specialist initiation FBC ESR LFTs	FBC, LFTs and BP monthly for first 6 months then every 2 months	FBC, LFTs every 2 months if stable but every month if taking another	Withhold treatment until discussion with rheumatologist if: - WBC <3.5	Male and females should not procreate within 2 years of	NICE CKS accessed 16/11/15

	U&Es inc creatinine Blood pressure should be normal (<140/90) on 2 consecutive readings 2 weeks apart prior to treatment Body weight Exclude pregnancy		immunosuppressant or potentially hepatotoxic drug. BP and weight at each monitoring visit Blood checks should be continued long-term, at least once a month, if co-prescribed with another immunosuppressant or potentially hepatotoxic agent.	Neutrophils <2 Platelets <150 Proteinuria >+1 on more than one occasion, > 2 fold rise in ALT or AST Also withhold if Rash, itch, hair loss, abnormal bruising, severe sore throat, breathlessness, headache gi upset, weight loss or oral ulceration occurs or elevated BP is difficult to control	discontinuing leflunomide. Follow washout protocol if severe undesirable side effects occur.	UKMI Monitoring Guidance v2014
Levothyroxine	TFTs ECG Refer if – aged <16 years, pregnant or post-partum, evidence of pituitary disease, new-born infant. Also refer if there are particular management problems eg ischaemic heart disease or treatment with lithium or amiodarone.	TSH should be checked 4 weeks after initiation of levothyroxine to see if dose adjustment required and 6 weeks after full replacement.	Recheck TFT annually or sooner if suspect non-compliance **If patient is on levothyroxine, please state on form and lab will do appropriate tests.**		Seek advice if carcinoma of thyroid	Consensus statement for good practice and audit measures in management of hypothyroidism and hyperthyroidism BMJ 1996; 313:539-544
Lithium **Lab will carry out test urgently if lithium toxicity is suspected.**	Specialist initiation Baseline U&Es, renal function tests, lipid profile, glucose, BP, thyroid function tests, and a full blood count	Lithium levels are normally measured 1 week after starting therapy, 1 week after every dose change, and weekly thereafter until the	Thyroid and renal function tests should be monitored every 6 months (or more often if there is evidence of impaired renal function).		Levels should be measured 12 hours post-dose. Provide lithium card / booklet	NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014

	are normally measured at the start of treatment. If there is a risk factor for, or existing, cardiovascular disease, an electrocardiogram is normally performed before treatment begins. The person's height and body weight should be recorded at the start of treatment.	levels are stable. Once the person is stable, lithium levels are measured every 3 months.	BP, blood glucose and lipid profile (if >40 years of age) and calcium levels annually FBC should be checked if clinically indicated. Monitoring of weight is only required after this if there is rapid weight gain.		Increase frequency of monitoring if patient is elderly, if problems are suspected or if the patient is co-prescribed an interacting medicine.	
Mesalazine	Mesalazine is always initiated in secondary care by a specialist. However, treatment may be continued and monitored by a general practitioner		Urea and electrolytes monthly for the first 3 months then annually or sooner if clinically indicated based on the person's risk factors. Risk factors include pre-existing renal impairment, other potentially nephrotoxic drugs, or comorbid disease Liver function tests every 3 months for the first year, then every 6 months for	Restore fluid and electrolyte balance as soon as possible if dehydration occurs. Withhold treatment until discussed with the specialist team. If eGFR <20mL/minute, withhold treatment until discussed with the specialist team.		NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014

			the next 4 years, and annually thereafter based on the person's risk factors as above	AST or ALT greater than twice the upper limit of reference range, withhold until discussed with the specialist team.		
Methotrexate	Methotrexate is always initiated in secondary care by a specialist. However, treatment may be continued and monitored by a general practitioner	FBC Liver Function Tests Urea and electrolytes including creatinine all fortnightly until 6 weeks after last dose increase	All monthly until the dose and disease is stable for 1 year. Thereafter, monitoring may be reduced in frequency, based on clinical judgement, and following discussion with specialist team, to every 2-3 months.	WBC <3.5 Neutrophils <2 Platelets <150 Withhold until discussed with specialist team. MCV > 105 fL Withhold and check vitamin B_{12}, folate and TSH. If abnormal, treat any underlying abnormality. If normal, discuss with the specialist team. AST, ALT > twice upper limit of reference range. Unexplained decrease in albumin (in absence of active disease). Withhold until discussed with specialist team. Mild-to-moderate renal impairment (creatinine clearance; mild = 20–50 mL/minute; moderate = 10–20 mL/minute), Withhold until discussed with specialist team.	Methotrexate is usually prescribed as a *once a week* treatment. Folic acid is routinely co-prescribed with methotrexate in order to reduce adverse effects and toxicity (folic acid is usually taken on a 'non-methotrexate' day). If rash or oral ulceration, nausea and vomiting, diarrhoea , new or increasing dyspnoea or dry cough, withhold and discuss with specialist team If severe sore throat or abnormal bruising, perform an immediate full blood count and withhold until the result is available. Discuss any unusual results	NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014 Maxtrex SPC accessed 16/11/15

					with specialist team.	
Minocycline			If treatment continues for longer than 6 months, monitor LFTs every 3 months	Discontinue if the patient develops hepatotoxicity, pigmentation or SLE or pre-existing SLE gets worse.	Consider prescribing lymecycline as more cost-effective alternative	BNF 70 September 2015 UKMI Monitoring Guidance v2014
NASIDs including coxibs	Etoricoxib – monitor BP before treatment, 2 weeks after initiation and periodically during treatment		Annual U&E, BP, renal function in patients over 65 years Haemoglobin levels annually if patient has risk factors for GI bleeding	Discontinue if gastro-intestinal lesions develop. All NSAIDs are contra-indicated in severe heart failure and diclofenac, celecoxib and Etoricoxib are contra-indicated in any degree of heart failure.	Use lowest effective dose for shortest period of time and review long-term treatment periodically	BNF 70 September 2015
Penicillamine	Penicillamine is always initiated in secondary care by a specialist. However, treatment may be continued and monitored by a general practitioner		FBC Liver Function Tests Urea and electrolytes including creatinine all 2-weekly until dose is stable for 3 months, and then monthly Ask about the presence of rash or oral ulceration at each visit.	Withhold treatment until discussion with specialist team if: WBC <3.5 Neutrophils <2 Platelets <150 Proteinuria 2+ or more Check MSSU: if evidence of an infection, treat appropriately. If sterile and 2+ proteinuria or more persists on two consecutive measurements, withhold until discussed with specialist team. If abnormal bruising, rash or sore throat, withhold until FBC available	Patients should be warned not to expect improvement for at least 6 to 12 weeks after treatment is initiated. Penicillamine should be discontinued if no improvement in 1 year. Ask patient about rash or oral ulceration at every visit.	NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014 BNF 70 September 2015

Phenytoin			Full blood count, electrolytes, liver enzymes, vitamin D levels and other tests of bone metabolism eg serum calcium, alkaline phosphatase every 2-5 years	Leucopenia which is severe, progressive or associated with clinical symptoms requires withdrawal. Seek specialist help. If rash occurs, stop treatment. If mild, re-introduce cautiously but discontinue immediately if recurrence.		NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014
Pioglitazone	Weight LFTs before starting treatment. Do not initiate treatment if ALT> 2.5x upper limit of normal. Investigate any macroscopic haematuria before starting therapy		LFTs every 6 months for first year then annually. Check LFTs if the person develops signs of liver dysfunction (e.g. nausea, vomiting, abdominal pain, fatigue, or dark urine) Monitor people taking pioglitazone for signs and symptoms of fluid retention (including weight gain or oedema). Monitor HbA_{1c} every 2–6 months until the person is stable on unchanging treatment then every 6 months once stable. Weight should be closely monitored	If alanine aminotransferase (ALT) levels increase to three times the upper limit of normal during treatment, recheck. If they remain greater than three times the upper limit of normal, treatment should be discontinued If jaundice is observed, treatment should be discontinued Stop pioglitazone if any deterioration in cardiac function is seen NICE recommends that treatment with the glitazone should only be continued if the person has had a reduction in HbA_{1c} of at least 0.5% (5.5 mmol/mol) within 6 months of starting treatment	Patients should be advised to promptly seek the attention of their physician if macroscopic haematuria or other symptoms such as dysuria or urinary urgency develop during treatment.	NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014 Actos SPC accessed 16/11/15

Propylthiouracil	The decision to start treatment with propylthiouracil and the starting dose should only be made after discussion with a specialist. Treatment is continued at the initial dose for 4–8 weeks until the person becomes euthyroid	Thyroid function tests A full blood count, white cell count and differential. Liver function tests.	TFT should be checked every 4 to 6 weeks and therapy titrated against levels until maintenance dose of 50 to 150mg achieved; thereafter recheck every 3 months FBC every 3 months If patient is on anti-thyroid therapy, please state on form and lab will do appropriate tests.	Check white cell count if any evidence of infection. **Stop immediately if clinical or laboratory evidence of neutropenia** Monitor for signs and symptoms of liver injury. Severe hepatic dysfunction is a rare but serious complication of propylthiouracil therapy requiring discontinuation of treatment	Patients should be warned to monitor for clinical symptoms of neutropenia eg sore throat, mouth ulcers. Patients should be advised of the symptoms of hepatic dysfunction (anorexia, pruritus, right upper quadrant pain, etc) and told to report them immediately.	Consensus statement for good practice and audit measures in management of hypothyroidism and hyperthyroidism BMJ 1996; 313:539-544 NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014
Sodium valproate and semi-sodium valproate	Usually initiated by or on the recommendation of specialist Before starting treatment, a full blood count, baseline liver function tests (LFTs), height, and body weight are usually measured.		LFTs, prothrombin time and a full blood count should be repeated 6 months after treatment has been initiated then annually. Monitoring of weight is only required in people who gain weight rapidly.	Stop valproate immediately if prolonged prothrombin time, abnormal liver function or blood dyscrasia is detected	Valproate levels are not routinely measured unless there is evidence of ineffectiveness, poor adherence, or toxicity.	NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014
Statins	Baseline liver enzymes (aminotransferases):		Repeat liver function tests (LFTs) within 3 months of starting treatment, again at 12 months, and after	If LFTs **less than three times** the upper limit of normal, continue the statin, but recheck LFTs within 4–6 weeks to exclude further increases in		NICE CKS accessed 16/11/15 UKMI Monitoring

	Do not initiate a statin if aminotransferase levels are three or more times the upper limit of normal: People with aminotransferase levels that are elevated but are less than three times the upper limit of normal should not be routinely excluded from statin therapy. Check creatine kinase if the person is at high risk of muscle toxicity. This is not routinely necessary in other people. The Scottish Intercollegiate Guidelines Network recommends pre-treatment baseline creatine kinase measurement for people at high risk of muscle toxicity (e.g. older individuals or when combining a		each dose increase, but not again unless clinically indicated (e.g. signs or symptoms of hepatotoxicity) Check creatine kinase as soon as possible if the person reports muscular symptoms (rhabdomyolysis and myopathy are rare but serious adverse effects of statins	aminotransferase levels. No extra monitoring is required if values are stable. If aminotransferase levels are **three times the upper limit of normal or more**, consider the following options, depending on the levels: • Stop the statin and recheck LFTs within 4–6 weeks to ensure that values settle (consider re-introducing the statin cautiously at a later date) *or* • Reduce the statin dosage and recheck LFTs within 4–6 weeks: • Stop the statin if aminotransferase levels continue to be three times the upper limit of normal or more. **If creatine kinase (CK) is five or more times the upper limit of normal, stop statin treatment immediately**. Check renal function. Monitor creatine		Guidance v2014

	statin with a drug known to increase myotoxicity) Thyroid function – correction of thyroid function may correct lipid abnormality. Check U&Es. Rosuvastatin contra-indicated if creatinine clearance <30ml/min			kinase fortnightly. If symptoms resolve and CK levels return to normal, then re-introduction of the statin or introduction of an alternative statin may be considered at the lowest dose, and with close monitoring. **CK level is less than five times the upper limit of normal:** If there are no muscle symptoms, continue the statin. Advise the individual to report immediately any unexplained muscular symptoms. Consider further checks of CK to ensure that values are not increasing. If there are muscle symptoms, continue the statin, monitor symptoms. Check CK concentrations regularly (for example, fortnightly) if CK values continue to increase. Stop the statin, or seek specialist advice if muscle symptoms are severe or CK values continue to increase.	Consider secondary causes of myopathy if the CK level remains elevated: • Underlying muscle disorders, renal impairment, hypothyroidism or alcohol abuse. • Concomitant use of other lipid-modifying drugs (e.g. fibrates and nicotinic acid). • Concomitant use of drugs that inhibit cytochrome P450 (e.g. ciclosporin, macrolide antibiotics [e.g. erythromycin, clarithromycin], azole antifungal [e.g. itraconazole, ketoconazole], grapefruit juice).	

Sulfasalazine	Sulfasalazine is always initiated in secondary care by a specialist. However, treatment may be continued and monitored by a general practitioner		Full blood count every 3 months; if stable during the first year, reduce to 6 monthly in second year.*	WBC < 3.5 x 10^9/L Neutrophils < 2.0 x 10^9/L Platelets < 150 x 10^9/L Withhold treatment and discuss with the specialist team. MCV > 105 fL Check vitamin B_{12}, folate, and TSH. If abnormal, treat any underlying abnormality. If normal, discuss with the specialist team		NICE CKS accessed 16/11/15 BSR Guidelines for monitoring DMARDS
			Liver function tests every 3 months; if stable during the first year, reduce to every 6 months in the second year.* * If both dose and results are stable in the second year, no further FBC and LFT monitoring is required	AST or ALT greater than twice the upper limit of reference range, withhold until discussed with specialist team Watch for dehydration and restore fluid and electrolyte balance as soon as possible if dehydration occurs.		
			Urea and electrolytes monthly for the first 3 months then as clinically indicated based on the person's risk factors. Risk factors include pre-existing renal impairment, other potentially nephrotoxic drugs, or comorbid disease	If eGFR <30mL/minute, withhold treatment until discussed with the specialist team.		

Tacrolimus	Tacrolimus is always initiated in secondary care by a specialist. It is usually also monitored by the specialist team	Blood pressure, visual status, electrocardiogram (ECG), blood glucose, electrolytes, creatinine & urea, full blood count and coagulation values and liver function tests.	GP may be asked to undertake some checks under shared care.	Discuss abnormal values with the specialist team		BNF 70 September 2015 NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014
Theophylline (and aminophylline)	Urea and electrolyte levels (paying particular attention to potassium levels). Liver function tests. Enquire about smoking status and advise patient to seek advice from doctor if status likely to change. Monitor alcohol consumption as high levels can reduce plasma concentration of theophylline		**Check potassium levels** regularly in people with severe asthma and those taking beta$_2$-agonists, corticosteroids, or diuretics as theophylline and aminophylline can potentiate hypokalaemia resulting from these drugs.	**Once the person is maintained on theophylline or aminophylline, check drug plasma levels:** • Routinely every 6–12 months. • Check more regularly in elderly people or those with heart failure or liver impairment. • At least 3 days after any dose adjustments. • If an enzyme-inhibiting drug is prescribed (raises plasma levels) or if an enzyme-inducing is prescribed (lowers plasma levels).	The Commission on Human Medicines (formerly the Commission on Safety of Medicines) has advised that potentially serious hypokalaemia may result from beta$_2$-agonist therapy. Particular caution is required in severe asthma, because this effect may be potentiated by concomitant treatment with theophylline and its derivatives, corticosteroids, and diuretics, and by hypoxia. Plasma potassium concentration should therefore be monitored in severe	NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014

				• If the person stops smoking (as a dose reduction may be necessary).	asthma.	
Vigabatrin	Specialist only	Specialist initiation by a neurologist Ophthalmologic consultation with visual field examined before initiation	Visual field testing at baseline and at 6 month intervals Electroretinography may be useful in adults unable to co-operate with perimetry Serum creatinine periodically	Refer all patients to a specialist if visual symptoms develop Since vigabatrin is eliminated via the kidney, exercise caution in patients with creatinine clearance less than 60ml/min and in elderly patients. These patients should be monitored closely for undesirable effects such as sedation and confusion.	Patients should be closely observed for adverse effects on neurological function Vigabatrin appears to inhibit both ALT and AST resulting in decreased measured plasma levels. Chronic treatment may lead to slight decrease in haemoglobin levels – rarely attains clinical significance	SPC for Sabril last accessed 16.11.15
Warfarin	Blood sample for PT, APTT, platelet count LFTs (avoid in severe liver disease), BP, thyroid status	For rapid anticoagulation, daily INR for a minimum of 4 days until desired INR is achieved, then weekly until stable.	Once patient's INR is within therapeutic range, the INR should be monitored weekly until stable and then at longer intervals up to every 12 weeks If an interacting drug is given for more than 5 days check INR one week after the start of new drug and adjust dose as	Action taken depends on the INR and whether there is minor or major bleeding. See BNF for details Risk of bleeding increases greatly once INR >5 If INR >8 oral anticoagulant should be stopped and advice sought on management Warfarin metabolism can be affected by thyroid status. People with hypothyroidism or hyperthyroidism should be	Refer to Appendix 1 of BNF when prescribing any new drug to patient taking warfarin	BNF 70 September 2015 NICE CKS accessed 16/11/15 UKMI Monitoring Guidance v2014

			necessary. Revise dosing regimen if new drug is stopped. If a potentiating drug is given for less than 5 days, consider minor dose adjustment or omission of 1 dose of warfarin.	closely monitored on starting warfarin therapy		

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