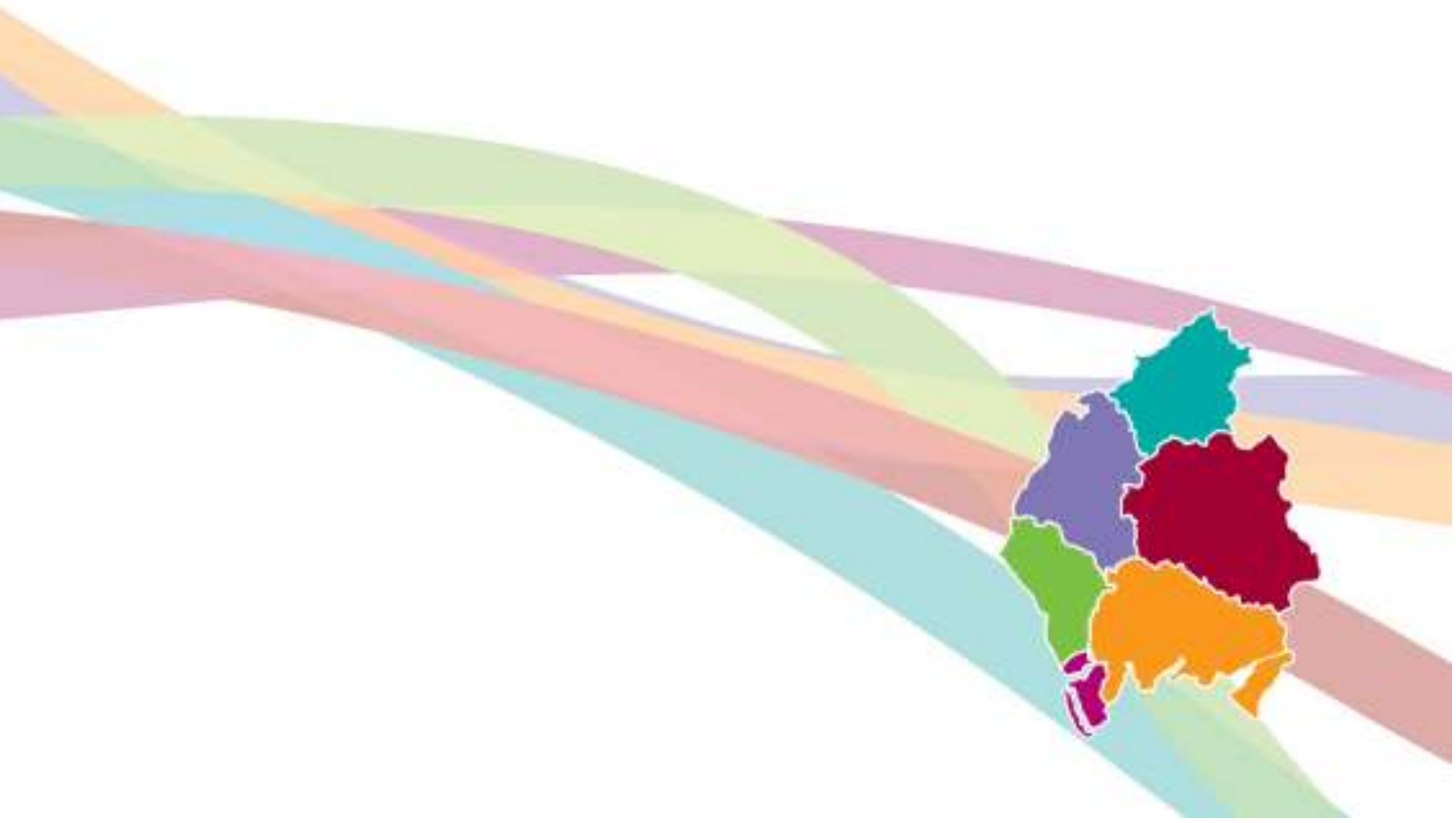
NHS
Cumbria
Clinical Commissioning Group

Clinical Medication Review

A Practice Guide



Overview

A definition of medication review is "a structured, critical examination of a patient's medicines with the objective of reaching an agreement with the patient about treatment, optimising the impact of medicines, minimising the number of medication related problems and reducing waste". (Room for Review, 2002)[1]

The review should, ideally be with the patient and their current medication to hand – but as a minimum with the full medical notes:

Check that

- the medication prescribed is appropriate for the patient's needs
- the medication is effective for the patient
- the medication is a cost effective choice
- any required monitoring has been done or arrangements are in place

Consider

- drug interactions
- side effects
- compliance
- concordance
- over-the-counter and complementary medicines
- lifestyle and non-medicinal interventions
- unmet need

Record

- information pertinent to any decisions made
- Read Code appropriate to the review:
  Level 2: Treatment Review – a review of medicines with the patient's full notes 8B314 or 8B3S
  Level 3 (also Type 3): Clinical Medication Review – a face to face review of medicines and condition 8B3V or 8B3x
- Proposed follow up

The following do **not** count as a full clinical medication review, but may be useful as part of the medication review process:

- technical check of the medication list or tidying up medication records e.g. removing unrequested items from repeats or dose optimisation
- switching to a formulary item
- "linking" medication to a "problem"
- re-authorising the repeat list or reviewing an individual medication/ disease without reviewing all medication as above
- asking the patient "is everything else alright?" at the end of a consultation
- a DRUM, a Dispenser's Review of Use of Medicines by dispensing doctors or their staff
- an MUR, a Medicines Use Review by community pharmacists

The practice should have a Standard Operating Procedure (SOP) for medication review that provides details of the process e.g. responsibilities of all staff involved; how a regular review is ensured; prescription duration; formulary adherence and process to be followed if a patient does not attend for monitoring as requested.

Background

Medication is by far the most common form of medical intervention. Four out of five people over 75 years take a prescription medicine and 36% are taking four or more drugs. [1] However, we also know that up to 50% of drugs are not taken as prescribed;[2,3] many drugs in common use can cause problems and that adverse reactions to medicines are implicated in 5-17% of hospital admissions. This leads to difficult decisions, particularly with the frail elderly, whether to initiate or discontinue medication.

Medication review is increasingly recognised as a cornerstone of medicines management, preventing unnecessary ill health and avoiding waste.

Involving patients in prescribing decisions and supporting them in taking their medicines is a key part of improving patient safety, health outcomes and satisfaction with clinical care.

Despite the publication of nationally recognised guidance on medication review in 2002[1] and 2008 [4] there is often still a lack of common understanding of what constitutes a medication review. Consequently the effectiveness of medication review can vary widely – this document aims to bring consistency to the standard of medication review delivered within NHS Cumbria.

Principles of Medication Review [1]

- All patients should have a chance to raise questions and highlight problems about their medicines.
- The medication review seeks to improve or optimise impact of treatment for an individual patient.
- The review is undertaken in a systematic and comprehensive way, by a competent person.
- Any changes resulting from the review are agreed with the patient.
- The review is documented in the patient's notes.
- The impact of any change is monitored.

Types and Levels of Medication Review

Medication review was originally a loose term but it has been gradually refined.

"Levels" of medication review were introduced by "Room For Review" in 2002 and are dependent on the level of detail of information used for the review [1]

Level 1: Prescription Review – a technical review of the list of a patient's medicines (8B3h).
Level 2: Treatment Review – a review of medicines with the patient's full notes (8B314 or 8B3S).
Level 3: Clinical Medication Review – a face to face review of medicines and condition (8B3V or 8B3x).

The face to face element was deemed important because patients' views about their medication will influence whether they take their medicines and non-compliance can cause ill health and cost to the NHS.

In 2008 the National Prescribing Centre published A Guide to Medication Review. [4] This is a framework for medication review with practical advice and examples. It describes different "types" of review in a less hierarchical manner than previously, as it recognised that different types of review each have a useful purpose and it is possible to have a useful discussion with the patient about their medication (face to face) without having the full notes as described as a level 3 review.

The types are:

Type 1: Prescription review – addresses issues relating to the prescription or medicines; the patient does not need to be present, nor access to full notes.

Type 2: Concordance and compliance review – addresses issues relating to the patient's medicine taking behaviour e.g. a DRUM or MUR (Dispenser's Review of Use of Medicines by dispensing doctors or their staff or Medicines Use Review by community pharmacists).

Type 3: Clinical medication review – addresses issues relating to the patient's use of medicines in the context of their clinical condition.

This practice guide is aimed at achieving a good quality Type 3 review, but can also be applied in part to a Level 2 or 3 review.

QOF requires that medication review is conducted in a systematic way. QOF specifies that "at least a Level 2 medication review will occur" [5] and as described in the NPC 2008 briefing paper. [4]

Who to review?

The first element of a systematic approach will be to identify the patients who might benefit from a review.

The GMS contract advises medication review to be undertaken every 15 months for **all** patients being prescribed repeat medicines. The review should be repeated whenever a new drug is added or a dose changed.

QOF 2012/13 requires 80 % of patients on repeat medication and 80 % of patients on four or more repeat items to have had a medication review in the past 15 months; however QOF is a basis for payment, rather than a definitive guide to best practice.

The National Service Framework for Older People stated: "By 2002: All people over age of 75 should normally have their medicines reviewed at least annually and those taking four or more medicines should have a review 6-monthly" This is mandatory for NHS organisations. [2]

To give all patients an annual medication review is an ideal to strive for, but in the meantime there is an argument for targeting full clinical medication reviews to those patients who are likely to benefit most.

Room for Review and A Guide to Medication Review suggested the following target groups to prioritise medication review:

Patients at risk of medicines-related problems

- taking four or more medicines every day
- on a complex medication regimen or more than 12 doses in a day
- recently discharged from hospital
- recently transferred to care home
- frequent hospital admissions
- with multiple diseases
- receiving medicines from more than one source e.g. specialist and GP
- significant changes to the medication regimen in the past 3 months or more than 4 changes in medication in the past 12 months
- taking higher risk medicines - those requiring special monitoring e.g. lithium; those with a wide range of side effects e.g. NSAIDs; or a narrow therapeutic range e.g. digoxin; or on drugs not commonly used in primary care ("red/amber" or "black" list – available from the medicines management intranet site)
- symptoms suggestive of an adverse drug reaction
- longstanding use of psychotropic medication
- where non-compliance is suspected or known
- high incidence of self medication

Special needs

- older people
- residents in care homes
- learning difficulties
- sensory impairment e.g. sight or hearing
- physical problems e.g. arthritis, swallowing difficulties
- mental states such as confusion, depression, anxiety, serious mental illness
- communication difficulties
- literacy or language difficulties
- minority ethnic groups
- refugees and asylum seekers
- living alone or poor carer support
- housebound
- recent falls
- identified by a screening tool (appendix 1)

Opportunities to improve care

- new evidence or guidelines
- newly diagnosed long term condition
- out of date care plan
- newly registered patient

Where possible, before a medication review, patients should be provided with written information about the review including what they can do to prepare for the review. [4] See appendix 2 for one example of a patient leaflet that may be adapted for use in the practice. Your prescribing support pharmacist can provide further samples.

Who does the review?

QOF requires “a competent person” to do the review.

In practice doctors, pharmacists and many nurses have the clinical skills and therapeutic knowledge to perform all aspects of medication review described here. Other practice staff may be able to deliver some, but not all of these elements – their work can be used to contribute to the full medication review process but should not be classed as a full medication review itself.

What should the review cover?

QOF guidance states that “at least a level 2 medication review will occur” i.e. the minimum standard is a treatment review of medicines with the full notes but not necessarily with the patient present. However QOF guidance goes on to say that “all patients should have the chance to raise questions and highlight problems about their medicines” and that “any changes resulting from the review are agreed with the patient”.

It also states that practices are expected to:

- Minimise waste in prescribing and ineffective treatments; and
- Engage effectively in the prevention of ill health to avoid the need for costly treatments by proactively managing patients to recovery through the whole care pathway in acting as conscientious gatekeepers to services.

For each drug:

Check that

- **The medication prescribed is appropriate for the patient’s needs**

  Following hospital discharge there may be unintentional changes to regular medication or conversely medication may have been introduced that was appropriate in the hospital setting, but is not needed at home e.g. hypnotics, enteral nutrition or nebules.

  National and local evidence-based guidelines should be considered at this stage.

  A medication may be time-limited e.g. clopidogrel and aspirin in combination for one year.

  Drugs of “limited clinical value” are flagged up in the BNF and the STOPP START Toolkit suggests medication that might be inappropriate for older people in certain situations. The dose prescribed should be reconsidered with advancing age or changing physiology e.g. renal clearance.

  It is unlawful for service providers to discriminate on grounds of age however for medication that has clinical benefit only after use for a number of years or is intended to prevent events in the distant future it is appropriate to consider the patient’s life expectancy when weighing up the benefits versus risks of a treatment. If the answer to the question “Would you be surprised if this patient were to die in the next few months, weeks or days?” is anything other than “yes” then reference to the Gold Standards Framework Prognostic Indicator Guidance [6] may clarify this and

then the medication review process should aim to provide the patient with medication that enables them to "live well until they die".

Particular care should be taken with drugs that are poorly tolerated in the frail elderly. These drugs are listed in the STOPP START Toolkit. (This toolkit and many local guidelines are available on the Medicines Management section of the NHS Cumbria intranet at: http://www.cumbria.nhs.uk/ProfessionalZone/MedicinesManagement/Home.aspx) Appendix 3 contains further supporting information such as NNT (numbers needed to treat).

Consideration should also be given to what might happen if the drug were stopped.

- **The medication is effective for the patient** – this may involve objective evidence e.g. change in HbA1c or discussion with the patient. In frail patients precedence may be given to drugs that provide symptomatic benefit or those that prevent rapid worsening of symptoms.

- **The medication is a cost effective choice** - prescribing within NICE guidance and the local formulary ensures that drug choices are evidence based and cost effective (NHS Cumbria adopted the Lothian Joint Formulary [7] however this may change with the creation of the CCG). The medication should be prescribed generically wherever appropriate. Specials (unlicensed products, imports and special formulations) are rarely cost effective. In preference a licensed alternative should be sought, if necessary used outside the licence. The Medicines Management team can provide advice and a guide to alternatives.[8]

- **Any required monitoring has been done or arrangements are in place** e.g. blood tests specific to a medication or to monitoring a disease. Some guidelines are available on the Medicines Management section of the NHS Cumbria intranet e.g as part of shared care protocols. Your prescribing support pharmacist will be able to advise on medication monitoring.

Consider

- **Drug interactions** – also consider the impact of withdrawing an interacting drug e.g. simvastatin and warfarin.

- **Contraindications to the drug** – this status may have changed since the drug was originally prescribed (either a change in licensing/evidence or a change in patient factors such as kidney function or co-morbidities) so that the benefit to risk ratio is no longer favourable. See Appendix 3 for numbers needed to treat and harm for commonly prescribed drugs.

- **Side effects** – adverse reactions are implicated in many hospital admissions; they can also lead to non-compliance and therefore ineffectual treatment. Some drugs may be appropriately prescribed to mitigate side-effects, but in many cases the original need for the original drug can be reconsidered e.g. should a PPI be co-prescribed with an NSAID, or could the NSAID be replaced with a less toxic option?

- **Compliance** – it is estimated that 50% of medicines are not taken as prescribed. The history of prescription "issues" can indicate non-compliance but cannot be

relied upon due to possible hoarding. The patient may have practical issues such as swallowing difficulties or remembering to take medication in a complex regimen. For patients that struggle to manage ordering repeat medication in time, repeat dispensing and/or the electronic transfer of prescriptions might help. The patient could also be encouraged to see the community pharmacist for an MUR or for provision of large labels, easy-open containers etc.

- **Concordance** – if the patient understands the rationale behind their treatment, they are more likely to take the medication as prescribed and adopt other non-medical measures.

  NICE now recognises this patient-centred approach as a key part of the medication review process and has issued specific guidance to support improved adherence. [9] This may be particularly important in the very elderly who may no longer be interested in medication that prolongs life, but be more willing to take medication that allows them to live without pain or discomfort. Patient decision aids can be used to inform patients about the risks and benefits of treatment e.g. available from www.npc.nhs.uk

- **Over-the-counter and complementary medicines** – many potent medicines can now be purchased by the patient; these may have side effects, antagonise or augment prescribed medication or affect the course of the disease. e.g. St John's Wort reducing contraceptive effect or decongestants in cough and cold remedies elevating blood pressure.

- **Lifestyle and non-medicinal interventions** – the patient may be more willing to adopt a lifestyle change than take medication – or have made a lifestyle change that negates the need for treatment e.g. weight loss to control hypertension. Lifestyle interventions that complement pharmacological therapy should also be promoted as appropriate.

- **Unmet need** - this is an opportunity to identify and treat new conditions, particularly those that increase in prevalence with age e.g. atrial fibrillation, heart failure and dementia. Some conditions are frequently under-treated e.g. warfarin could be more widely used to prevent stroke in atrial fibrillation. The STOPP START Toolkit is a detailed aid to medication that might be either inappropriate or worth starting in the elderly.

Tools to support medication review

Prescribing software medication review templates can be used to prompt key points to address during a review. An NHS Cumbria developed medication review template is available for EMIS LV and Vision. Please contact your prescribing support pharmacist for more information.

The NO TEARS tool is a mnemonic designed to prompt consideration of the key areas above during a ten minute consultation (Appendix 5). [10]

The STOPP START Toolkit is a detailed aid to medication that might be either inappropriate or worth starting in the elderly. It is available on the Medicines Management section of the NHS Cumbria intranet at:
http://www.cumbria.nhs.uk/ProfessionalZone/MedicinesManagement/Home.aspx

Appendix 3 contains further supporting information such as NNT (numbers needed to treat) and NNH (numbers needed to harm).

Prescribers still need to use their clinical judgement when adjusting a patient's medication – the NNTs and NNHs can only be a guide as they are limited by the original study limitations (e.g. frail elderly excluded from trials) and may not take into account the combination of therapy given to an individual patient.

Appendix 4 gives a sample paper based medication review template designed for pharmacist use but that can be adapted for other clinicians.

Implementing changes

Medication changes may be implemented during medication review by a prescriber.

However, if the reviewer is not a prescriber then any recommendation for change must be discussed with/communicated to the prescriber using an agreed method. The prescriber should then record any changes, or reasons for not implementing recommended changes, in the patient's records.

Documentation

Record

- Information pertinent to any decisions made
- Recommendations (if the reviewer is not a prescriber)
- Read Code appropriate to the review
    - Level 2: Treatment Review – a review of medicines with the patient's full notes 8B314 or 8B3S
    - Level 3 (also Type 3): Clinical Medication Review – a face to face review of medicines and condition 8B3V or 8B3x
    - A review undertaken by a medicines management pharmacist should be Read coded as 8BMY
    - If an MUR has been undertaken by a community pharmacist this should be Read coded as 8BMF
- Proposed follow up.

QOF guidance states that the review should be documented in the patient's notes.

Medication review templates can be used to prompt key points to address and improve Read coding as well as allow free text recording of the review. An NHS Cumbria developed medication review template is available for EMIS LV and Vision.

Communication of changes

The patient and/or carer must be informed of changes and have the opportunity to discuss or be involved in the decision making.

If the patient is resident in a care home, uses a monitored dose system or uses the repeat dispensing service the community pharmacy should also be informed of medication changes.

Follow up

If the reviewer is not a prescriber then any urgent recommendation for change must be followed up in a reasonable timescale.

The practice SOP should state mechanisms for follow up e.g. by defining amended medication as “acute” or resetting medication review diary dates for one month, six months or a year.

QOF requires that the impact of any change is monitored.

The medication review SOP should demonstrate how the system works and in particular how regular review (e.g. annual) is ensured. This in turn will provide evidence for part of the QOF assessment.

Optimising resources

Although a clinical medication review with a patient is seen as the ideal form of review, they will be the most resource intensive form of review. This can be mediated by

- deploying the skills of a range of personnel to fulfil different elements of the review – or to supplement periodic clinical medication review with other forms of review e.g. through MURs and/or DRUMs

- focussing in the first instance on patients in greatest need - typically elderly patients on polypharmacy or those recently discharged from hospital

- following a clear structure as described in the overview.

References

1. Room for Review: A guide to medication review: the agenda for patients, practitioners and managers. Task Force on Medicines Partnership and The National Collaborative medicines Management Services Programme. 2002

2. Department of Health. National Service Framework for Older People 2001. www.dh.gov.uk

3. From Compliance to Concordance 1997. Royal Pharmaceutical Society of Great Britain.

4. A Guide to Medication Review 2008. National Prescribing Centre. A framework for medication review with practical advice.

5. Quality and Outcomes Framework guidance for GMS contract 2012/13 http://www.nhsemployers.org/PayAndContracts/GeneralMedicalServicesContract/QOF/Pages/QualityOutcomesFramework.aspx

6. Prognostic Indicator guidance http://www.goldstandardsframework.org.uk/Resources/Gold%20Standards%20Framework/General/Prognostic%20Indicator%20Guidance%20October%202011.pdf

7. The Lothian Joint Formulary www.ljf.scot.nhs.uk

8. NHS Cumbria Medicines Management Information available from: http://www.cumbria.nhs.uk/ProfessionalZone/MedicinesManagement/Home.aspx

9. National Institute for Health and Clinical Excellence. NICE clinical guideline 76. Medicines Adherence January 2009

10. Tessa Lewis. Using the NO TEARS tool for medication review. BMJ 2004 Vol 329, 433-434

Appendices

Appendix 1

Medication Review Screening Tool

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

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

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

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

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

Are the medicines currently prescribed by your GP the only medication you take?
Y/N

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

Are you comfortable with your current medication?
Y/N

Any “No” answer prioritises the patient for medication review

(from Morecambe Bay PCT – Medication Review for patients aged over 75 years)

Appendix 2

Sample Patient Information Leaflet

Practice Address and contact details

LOGOS/ PICTURES

MEDICATION REVIEW

Information for patients

WHAT IS A MEDICATION REVIEW?

A medication review is a *meeting* to discuss your medicines with a healthcare professional. The meeting is *free* and is an opportunity to check that your medicines are the best ones for you. It is also an opportunity for you to ask questions and find out more about your medicines. Its purpose is to check that you are getting the best from your medicines.

The meeting is *confidential*. Whoever you talk to, the details will be kept private. You can speak openly about any worries you may have about your medicines and the person conducting the medication review will listen to you. A record of the meeting will be added to your medical notes. No medicines will be altered without agreement with you and your doctor.

BENEFITS OF ATTENDING A MEDICATION REVIEW

You will have the opportunity to:

- ✓ Find out more about your condition(s) and medicine(s)
- ✓ Tell a health professional how you feel about your treatment
- ✓ Ask if you are taking the most appropriate medicines for your illness and how best to take your medicines.

HOW TO PREPARE FOR YOUR MEDICATION REVIEW

When attending for your medication review please bring along:

- a list of all the medicines that are prescribed for you including **liquid medicines, creams and ointments, inhalers or other devices, eye and ear drops**

- any medicines you buy from the pharmacy, health shop or supermarket such as **painkillers, vitamins, herbal products or other supplements**

- Any medicines you no longer take. You can keep hold of them if you wish, or you can take them to your nearest pharmacy and they will dispose of them safely.

Before your appointment: think about any questions, concerns and suggestions you have about your medicines and write them down to bring with you.

- ✓ Make sure you know when, where and who you are meeting. You can make an appointment at reception. *If you have difficulty getting to the surgery please ask as it may be possible to visit you at home.*
- ✓ If you have special concerns about a medicine jot this down and bring it along. Otherwise, making a list of medicines you are taking is usually enough.
- ✓ If there is someone who helps you manage your medicine, such as a family member, you may find it helpful to bring them with you to your review.

QUESTIONS YOU COULD ASK AT YOUR MEDICATION REVIEW

Here is a list of questions that you could ask at your review. These are only suggestions; you can write your own questions down in the space provided below.

- What does this medicine do?
- Why is it important to take the medicine?
- What other treatment options are available?
- When and how should my medicine be taken?
- How long should I take my medicine for?
- What medicines, drinks, foods or activities should I be aware of when taking my medicine?
- What should I do if I don't feel well when taking my medicine?
- How can I tell if my medicine is helping?
- How can I be sure that it is safe to take my medicine?

- What are the possible risks or side effects of taking my medicine and what should I do if I get one of the side effects?
- What will happen to me if I miss a dose of my medicine or if I stop taking it altogether?
- Is there anything that could help me to take my medicine more easily or help me to remember when to take them?
- Where can I go for more information about my medicine?

Write your own questions and concerns here:

WHAT HAPPENS AFTER A MEDICATION REVIEW?

- ✓ Your regular doctor will be informed of any changes agreed to at the medication review.
- ✓ The medicines you are prescribed may change; but only with your agreement.
- ✓ A summary of the meeting will be entered into your medical record.
- ✓ You can agree any future treatment requirements, (tests, referrals to other health professionals etc.) and a date for your next medication review at the end of the meeting.

Contact details for surgery.

NHS Choices

http://www.nhs.uk/Pages/HomePage.aspx

Appendix 3

Further information to support review

The information in this appendix is designed to supplement that found in the BNF and the STOPP START Toolkit. Drug interactions, contraindications and dosage adjustments necessary for renal and hepatic impairment are covered in the BNF so not all repeated here.

The **number needed to treat** (NNT) is an estimate, based on clinical trial data of the number of patients who need to receive a drug (usually at a defined dose for a defined duration) for one patient to show the desired benefit e.g. prevent death. Unless stated NNTs are given here per annum. **Number needed to harm** (NNH) is similarly an estimate of how many patients need to be treated with the drug for just one to have an adverse effect. Usually minor side-effects are excluded.

Prescribers still need to use their clinical judgement when adjusting a patient's medication – the NNTs and NNHs can only be a guide as they are limited by the original study limitations (e.g. frail elderly excluded from trials) and may not take into account the combination of therapy given to an individual patient.

There is no absolute formula for deciding how close NNT and NNH need to be to decide that the benefits no longer outweigh the risks. This will vary from patient to patient as their perceptions of what they are willing to put up with and what they want to achieve varies. (Many of the NNTs are taken from an NHS Highland document[1] – please consult this for the original study references if no reference is given).

The **ACB** score (anticholinergic burden[2]) is included here because anticholinergic (antimuscarinic) side effects are well documented from constipation to confusion. Many drugs have some degree of anticholinergic effect so combining them will increase the risk of a serious problem, particularly in the elderly, such as cognitive impairment or falls.

If the total drug score adds up to three or more this is considered to be clinically relevant. A study of patients over 65 found that 20% of participants who scored four or more had died by the end of the two year study period compared with 7% of patients with a score of zero. The risk of dying increased by 26% for every point scored.

The list is not exhaustive so it is reasonable to assume that drugs of the same class have the same score unless stated.

Considerations to optimise medicines use given in each section are adapted from The PrescQIPP Workstream Bulletin[3] please consult that for the original references. It is assumed that the guidance given earlier in this guide on what the review should cover (e.g. valid indication for prescribing) will also be followed so is not re-iterated here.

Drugs stated as being in the **PrescQIPP DROP List** have been taken from The PrescQIPP Workstream Bulletin[4] which lists twenty drugs that are poor value for money or have safer alternatives. The drugs are identified here as a prompt for review, the bulletin gives further details on the rationale for their inclusion in the list, suggested alternatives and scenarios where the drug may be appropriate, please also consult it for the original references.

BNF Chapter 1 – Gastro-intestinal System

ACB Score 1	ACB Score 2	ACB Score 3
Alverine	Belladonna alkaloids	**Atropine**
Cimetidine	Prochlorperazine *	**Dicyclomine**
Loperamide		**Hyoscine**
Ranitidine		**Propantheline**

*From NHS Scotland Polypharmacy Guidance Oct 2012

Considerations to optimise medicines use

H2 antagonists/PPIs: check if there has been no proven peptic ulcer, GI bleeding or dyspepsia for 1 year. Continued use may contribute to C difficile infection.

Laxatives: check if previous use of opioid analgesics has been reduced or stopped; if regular bowel movements are occurring without difficulty; if the patient is eating and drinking and has an adequate fluid intake.

If more than one laxative is used, reduce and stop one at a time – reducing the stimulant laxative first and increasing the dose of the osmotic laxative if necessary.

PrescQIPP DROP List
Esomeprazole – isomer of omeprazole.

BNF Chapter 2 – Cardiovascular System

ACB Score 1	ACB Score 2	ACB Score 3
Atenolol		
Captopril		
Chlorthalidone		
Digoxin		
Dipyridamole		
Disopyramide		
Furosemide		
Hydralazine		
Isosorbide		
Metoprolol		
Nifedipine		
Quinidine		
Timolol		
Triamterene		
Warfarin		

Considerations to optimise medicines use

Antihypertensives: check if the BP is too low; if the risks outweigh the benefits stop one antihypertensive at a time – restart if BP increases above NICE target (140/90 for under 80 years, 150/90 for over 80 years).

In the over 80s with BP>140/90 but otherwise low cardiovascular risk **NNT 80** and with high cardiovascular risk (diabetes, vascular disease) **NNT 32** to avoid one cardiovascular event (two years to see effect); **NNT 122** to avoid one cerebrovascular event. In the over 60s with otherwise low cardiovascular risk **NNT 107** and with high cardiovascular risk **NNT 40** to avoid one cardiovascular event (4.5 years to see effect); **NNT 225** to avoid one cerebrovascular event.

In diabetes standard BP control (systolic < 140) **NNT 57** to prevent one stroke, major diabetes event or death but tight control (systolic 120) v standard (systolic 134) **NNT 500** to prevent one stroke (4 years for effect) and **NNH 50**.

ACEIs in elevated vascular risk **NNT 280** and in impaired LV function **NNT 30** to prevent one death (all cause mortality).
ACEI plus indapamide **NNT 55** to prevent one stroke.

Nitrates: check if the patient has had no chest pain for six months or has reduced mobility.

Lipid lowering drugs: re-evaluate the patient risk profile; stop in metastatic disease. (It is impossible to give evidence based guidance on whether to continue or stop statins in the over 80s due to the paucity of trial data however in primary prevention they *may increase* all cause mortality)[5]
Post MI or angina **NNT 80 to 170** with statins to prevent one major coronary event (no difference in mortality to 5 years). More specifically, post stroke with atorvastatin 80mg NNT 165 to prevent one cardiovascular event (no difference in mortality to 5 years).

Aspirin: if used in primary prevention re-evaluate need (massive NNT); query doses above 150mg for cardiovascular indication and its use in dizziness which is not clearly attributable to cerebrovascular disease. Post stroke/TIA **NNT 100** to prevent one stroke, MI or vascular death. Stopping aspirin prescribed for secondary prevention has **NNH 250**.

Dipyridamole: clopidogrel is now preferred over dipyridamole in ischaemic stroke and peripheral artery disease. However post stroke/TIA the combination of dipyridamole plus aspirin has similar NNT to clopidogrel **NNT 100** to prevent one vascular event.

Anticoagulants: if started following hip or knee surgery are they still required? Consider if long term warfarin use is still required e.g. if VTE provoked by surgery, other trigger factors or below knee.

Warfarin may be indicated e.g. in AF with another risk factor **NNT** with warfarin instead of aspirin **40** to prevent one stroke (no difference in mortality).

Relative risk of bleeding compared to warfarin alone: REF Highland

	RR v warfarin	Confidence interval
Warfarin	1	
Aspirin	0.93	0.88 – 0.98
Clopidogrel	1.06	0.87 – 1.29
Aspirin + clopidogrel	1.66	1.34 – 2.04
Warfarin + aspirin	1.83	1.72 – 1.96
Warfarin + clopidogrel	3.08	2.32 – 3.91
Warfarin + aspirin + clopidogrel	3.70	2.89 – 4.76

Peripheral vasodilators: clinical effectiveness not established (NICE do state you can give naftidofuryl for leg pain).

Digoxin: long term digoxin at over 125 mcg per day in patients with impaired renal function can lead to an increased risk of toxicity.

Cardiovascular drug combinations:
In secondary prevention post MI in the over 80s the combination of ACEI plus beta-blocker plus aspirin plus a statin **NNT 33** to prevent one death.

In impaired LV function treating with ACEI and beta-blocker **NNT 14** to prevent one death (for mild to moderate impairment NNT is 15). In severe impairment the combination of ACEI plus beta-blocker plus spironolactone **NNT 7** to prevent one death.

PrescQIPP DROP List
Doxazosin **MR** – no benefit over immediate release.
Omega-3 fish oils – encourage patient to obtain fish oils from their diet – evidence re supplementation is weak.
Perindopril arginine – no benefit over generic perindopril erbumine.
Aliskiren – limited evidence of benefit.

BNF Chapter 3 – Respiratory System

ACB Score 1	ACB Score 2	ACB Score 3
Alimemazine	Cetirizine*	Brompheniramine
Theophylline	Cyproheptadine	Chlorphenamine
	Loratadine*	Clemastine
		Diphenhydramine
		Hydroxyzine
		Promethazine

*From NHS Scotland Polypharmacy Guidance Oct 2012

Considerations to optimise medicines use
Theophylline: monotherapy in COPD is not appropriate

Oral corticosteroids: prednisolone maintenance in COPD is not usually recommended. (NB gradual withdrawal)

Inhaled corticosteroids: in asthma review every three months and if control achieved reduce dose slowly e.g. by 50% every three months.

PrescQIPP DROP List
Desloratadine – no advantage over loratadine.

BNF Chapter 4 – Central Nervous System

ACB Score 1	ACB Score 2	ACB Score 3
Alprazolam	Amantadine	Amitriptyline
Bupropion	Carbamazepine	Chlorpromazine
Codeine	Methotromeprazine (Levomepromazine)	Clomipramine
Dextropropoxyphene	Oxcarbazepine	Clozapine
Diazepam	Pethidine	Dimenhydrinate
Fentanyl	Pimozide	Doxepin
Fluvoxamine	Prochlorperazine *	Hyoscine
Haloperidol		Imipramine
Morphine		Nortriptyline
Risperidone		Olanzapine
Trazodone		Orphenadrine
		Paroxetine
		Perphenazine
		Procyclidine
		Promazine
		Quetiapine
		Trifluoperazine
		Trihexyphenidyl
		Trimipramine

*From NHS Scotland Polypharmacy Guidance Oct 2012

Considerations to optimise medicines use

Benzodiazepines: check if physical and psychological health and personal circumstances are stable and consider withdrawal which should be gradual.

Antipsychotics: in dementia patients with BPSD review and discontinue unless there is extreme risk or distress for the patient. Standardised symptom evaluations and drug cessation attempts should be undertaken at regular intervals. Withdrawal after long term therapy should be gradual and closely monitored.

Antidepressants: for a single episode of depression treat for six to nine months; for multiple episodes treat for at least two years; do not use dosulepin; consider ACB score and potential to worsen dementia, glaucoma, constipation and urinary retention; SSRIs can induce hyponatraemia; withdrawal should be gradual.

Drugs for dementia: review according to NICE guidance – they can be continued if having a worthwhile effect but usually the MMSE should be over 10 for AChEIs. Memantine may be used in severe dementia (MMSE<10).

Opioid analgesics: check if pain is still severe enough to warrant a regular opioid as the risk of falls/constipation can out weigh the benefits; consider non-drug options e.g. regular paracetamol; review laxatives.

Opioid analgesics – further information
Treat stepwise according to the World Health Organisation pain ladder[6] – although developed for cancer pain relief it can be applied to chronic pain.

Prescribe regular paracetamol (opioid sparing)
Step 1 & 2:

The Oxford league table of analgesic efficacy[7]

- Number Needed to Treat (NNT) for at least 50% pain relief over 4-6 hours in patients with moderate to severe pain.

- Paracetamol 1g + Codeine 60mg NNT 2.2
- Diclofenac 50mg NNT 2.3
- Ibuprofen 400mg, 600mg NNT 2.4
- Paracetamol 1g NNT 3.8
- Tramadol 100mg NNT 4.8
- Codeine 60mg NNT 16.7

- Patients should be given the individual components where possible to allow titration of dose.

Codeine (plus paracetamol) is the step 2 opioid of choice, however 10% of Caucasians cannot metabolise codeine to active metabolites so if very little response, consider tramadol.

Step 2 opioids that you may want to switch away from include:
Co-proxamol – license withdrawn due to toxicity and relative inefficacy - on the PrescQIPP DROP List.
Dihydrocodeine or dipipanone – locally abused
Co-dydramol, co-codamol 8/500 &15/500mg and Tramacet – low strength opioids so little pain killing benefit but with the opioid side effects.

Morphine is the step 3 opioid of choice (Zomorph brand). Oxycodone and fentanyl (Matrifen) have no advantage except where morphine is not tolerated or the oral route cannot be used.

Consider the need for laxatives: stool softener plus stimulant or osmotic.

Step 3 opioids that you may want to switch away from include:
Fentanyl buccal or intranasal – on the PrescQIPP DROP List and APC black list[8] (other drugs preferred). Buprenorphine patches and oxycodone/naloxone are also APC black (not accepted by the SMC).

PrescQIPP DROP List
Escitalopram – isomer of citalopram.
Co-proxamol – more toxic in overdose than paracetamol.
Fentanyl immediate release – limited evidence compared to morphine.
Lidocaine patch – expensive product with limited evidence of benefit.
Tramadol with paracetamol – fixed low dose paracetamol (325mg) – no more effective than established analgesics and more expensive.
Oxycodone/naloxone – uncertain clinical benefit and more costly than oxycodone plus a laxative.

BNF Chapter 5 – Infections

Considerations to optimise medicines use
Antibacterials: inappropriate uses include that a bacterial infection has resolved; a viral infection has been diagnosed; prophylactic treatment prescribed but no pathogen isolated;

treatment of asymptomatic bacteriuria in older patients, diabetes patients or catheterised patients. Check if fluid intake is adequate.

PrescQIPP DROP List
Amorolfine nail laquer and tioconazole cutaneous solution – systemic treatments more effective if antifungal treatment indicated.

BNF Chapter 6 – Endocrine System

ACB Score 1	ACB Score 2	ACB Score 3
Hydrocortisone		
Prednisolone		

Considerations to optimise medicines use

Tight HbA1c control in type 2 diabetes can increase mortality – in one study HbA1c of around 7.5% had the lowest mortality, with risk of death rising significantly either side of this.[9] **NNT 200-333** to prevent one microvascular event (predominantly retinal). No difference in macrovascular risk.

Metformin in overweight diabetics **NNT 50** to prevent one MI, diabetes related event or death.

Bisphosphonates: review if the treatment has been taken for five years or over; if the risk of falls is low they may be no longer needed but prolonged immobility *is* a risk factor for low BMD.

These NNTs are for treatment with alendronate plus calcium and vitamin D supplementation, used for secondary prevention of osteoporotic fractures – normally two years treatment is needed to see effect:

Age	NNT vertebral #	NNT Prevent Hip #
70-74 years	65	430
75-79 years	45	180
80-84 years	60	105
85-89 years	55	45
90+	40	40

PrescQIPP DROP List
Ibandronic acid tablets/injection – no advantage over alendronate and more expensive.
Gliclazide modified release formulations – Glicazide MR 30mg is approximately therapeutically equivalent to gliclazide 80mg.

BNF Chapter 7 – Obstetrics, Gynaecology and Urinary Tract Disorders

ACB Score 1	ACB Score 2	ACB Score 3
		Darifenacin
		Flavoxate
		Oxybutynin

		Propantheline
		Tolterodine

Considerations to optimise medicines use
Alpha blockers: not generally indicated if patient has a long term catheter.

Antimuscarinics: review effectiveness after 3-6 months; check if continence pads are used (making the antimuscarinic unnecessary); consider the potential side effects (postural hypotension, urinary retention, constipation, reduction in MMSE); check ACB score.

Tadalafil once a day – not cost effective compared to "on demand" in most patients.

The Lothian Joint Formulary has a useful section on **HRT** which gives the NNTs and NNHs at
http://www.ljf.scot.nhs.uk/LothianJointFormularies/Adult/6.0/6.4/6.4.1/Pages/default.aspx

PrescQIPP DROP List
None listed – although some work has been done locally on rationalising the prescribing of erectile dysfunction drugs.

BNF Chapter 8 – Malignant Disease and Immunosuppression

Considerations to optimise medicines use
Cytotoxics and immunosuppressants: consider the expected outcome – do possible adverse drug reactions out weigh the possible benefit; consider referring the patient back to the doctor who initiated treatment.

BNF Chapter 9 – Nutrition and Blood

Considerations to optimise medicines use

Sodium, potassium and iron supplements: check if indication still current.

Vitamins: check for valid indication

Calcium and vit D: check if the patient might have adequate levels through diet/sunlight exposure or if still otherwise indicated.

Sip feeds: check if there has been a recent dietician review; might the patient be able to have fortified food?

PrescQIPP DROP List
Calcium and ergocalciferol (or vitamin D without strengths stated) for prevention of osteoporotic fractures – insufficient dose.

There is local guidance available on the prescribing of vitamin D and baby milks available at
http://www.cumbria.nhs.uk/ProfessionalZone/MedicinesManagement/Guidelines/Home.aspx

BNF Chapter 10 – Musculoskeletal and Joint Diseases

ACB Score 1	ACB Score 2	ACB Score 3
Colchicine	Baclofen*	Propantheline

*From NHS Scotland Polypharmacy Guidance Oct 2012

Considerations to optimise medicines use
NSAIDs: possible adverse drug reactions might outweigh the benefits in mild osteoarthritis (>3 months use), hypertension, heart failure, renal failure. Review the need for long term use of topical NSAIDs.

DMARDs/TNF inhibitors: refer to doctor who initiated treatment if no improvement.

PrescQIPP DROP List
Glucosamine/chrondroitin – not recommended by NICE for osteoarthritis.

BNF Chapter 11 – Eye

Considerations to optimise medicines use
Eye drops/ointments: check need for preservative free formulations; eye drops used more than four times a day; long term antibiotic preparations.

BNF Chapter 12 – Ear, Nose and Oropharynx

Considerations to optimise medicines use
Drops,sprays, solutions: have antibiotic/steroid/sympathomimetic preparations been continued without a review or stop date?

BNF Chapter 13 – Skin

Considerations to optimise medicines use
Creams, ointments: has the condition resolved or could continued use exacerbate the condition? Is the patient using sufficient emollient?

PrescQIPP DROP List
Minocycline for acne – increased risk of side effects compared to oxytetracycline, lymecycline or doxycycline.
Eflornithine cream for hirsutism – continuous use needed.

References for Appendix 3

1. Polypharmacy Action Group. NHS Highland; Polypharmacy:Guidance for prescribing in frail adults. Nov 11

2. Fox C. Anticholinergic Medication Use and cognitive Impairment in the Older Population: The Medical Research Council Cognitive Function and Ageing Study. Journal of the American Geriatrics Society 2011; 59:8

3. UKMI. The PrescQIPP Workstream Bulletin 8 Sept 2011

4. UKMI. The PrescQIPP Workstream Bulletin 10 Feb 2012

5. REF Petersen L et al Age and Aging: 2010; 39: 674-680 Lipid-lowering treatment to the end? A review of observational studies and RCTs on cholesterol and mortality in 80+ year olds.

6. WHO pain ladder available at http://www.who.int/cancer/palliative/painladder/en/

7. The Oxford league table of analgesic efficacy: http://www.medicine.ox.ac.uk/bandolier/booth/painpag/Acutrev/Analgesics/Leagtab.html

8. http://www.cumbria.nhs.uk/ProfessionalZone/MedicinesManagement/TrafficLight/Home.aspx

9. Currie et al. Survival as a function of HbA1c in people with type 2 diabetes: a retrospective cohort study. The Lancet, 2010 volume 375: 9713; 481-489.

Appendix 4

Sample Medication Review Form

Name…… DOB……
Doctor…… Pharmacist……
Date……

Past medical history			Allergies

Reason for review…….Patient present/not present……..Read code ……

Medication	Date started	Indication (Contraindicated?)	Previous therapy for this indication/notes/interactions	Compliance **G**ood/**P**oor	Monitoring Date	Value Add/tick OK
1.					**BP**	
2.					**Chol**	
3.					**HDL/LDL/TG**	
4.					**U&Es**	
5.					**LFTs**	
6.					**FBC**	
7.					**BG/HBA$_1$C**	
8.					**TFTs**	
9.					**Pulse**	
10.					**Other**	
11.						

Understands purpose of meds?	Buying any meds OTC?	Any difficulties taking meds?
Believes meds working?	Experiencing side effects?	Any difficulties obtaining meds?
Any untreated problems?	Make one thing better?	Reminder chart issued?
Smoking status	Diet advice given	Alcohol advice given

Medication Review Action Plan

Name…… DOB……

Doctor……. Pharmacist……

Date……

Medication problem identified	Action proposed	Action by	Implementation authorised/refused - comments
1			
2			
3			
4			

Signed (GP)……..

Please return to …

Appendix 5

The NO TEARS Mnemonic to Aid Medication Review in a 10 Minute Consultation [10]

N Need and Indication
O Open Questions

T Tests and Monitoring
E Evidence and Guidelines
A Adverse Events
R Risk reduction or prevention
S Simplification and switches

Need and indication –

- Does the patient know why they take each drug?
- Is each drug still needed?
- Is the diagnosis refuted?
- Is the dose appropriate?
- Was long term therapy intended?
- Would non-pharmacological treatments be better?

Open questions –

- Allows patients to express views,
- Helps to reveal any problems they may have.

Test and Monitoring –

- Assess disease control.
- Any conditions under-treated?
- Use appropriate reference for monitoring advice e.g. BNF

Evidence and Guidelines –

- Has the evidence base changed since initiating drug?
- Are any drugs now deemed 'less suitable'?
- Is dose appropriate? (Over or under-treatment, extreme old age)
- Are other investigations now advised e.g. echocardiography?

Adverse Events –

- Any side effects?
- Any over the counter or complementary medicines?
- Check interaction, duplications or contra-indications.
- Don't misinterpret an adverse reaction as a new medical condition.

Risk Reduction or Prevention –

- Opportunistic screening.
- Risk reduction e.g. Falls – are drugs optimized to reduce the risks?

Simplification and Switches –

- Can treatment be simplified?
- Does patient know which treatments are important?
- Explain any cost effective switches.

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