UKMi
UK Medicines Information

The PrescQIPP Workstream

NHS East of England

Optimising Safe and Appropriate Medicines Use

The NHS spends £8 billion on medicines a year and in 2010 issued over 900 million prescription items. It is estimated that medicines worth over £300 million are wasted each year, of which at least half is avoidable. The Department of Health estimates that as many as 1 in 9 households have at least one prescribed medicine no longer being used. The cost to the NHS of people not taking their medicines properly and not getting the full benefits to their health is estimated at over £500 million a year. [1, 2]

Recent American and UK articles have encouraged prescribers to consider strategies for appropriate, safe and judicious prescribing. Prescribing principles should be considered to ensure medicines are used optimally. These include use of non drug therapies; being cautious about unproven drug uses; remaining vigilant to adverse effects of medicines and educating patients about these effects and monitoring which is required, so therapy is not stopped unnecessarily; exercising caution regarding new drugs; obtaining unbiased information before making a decision on whether to prescribe or not and sharing decisions with patients around adherence and whether to start or stop medicines. [3, 4]

When speaking to patients about their medicines, health care professionals should review whether therapy is appropriate and still being adhered to. Pharmacy based services such as medicines use reviews are adherence-centred reviews with patients on multiple medicines, particularly those receiving medicines for long term conditions. Clinical medication reviews are a 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. [5]

Medicines optimisation may include stopping a treatment. Medicines should be stopped on an individual basis if:

- there is no valid or relevant indication for prescribing as assessed by changes in symptoms, signs, laboratory and diagnostic test results. [6]
- the known possible adverse drug reactions outweigh the possible benefits. [6]
- there is a risk of cumulative toxicity if particular medicines are taken together. [7]
- the patient is choosing to not take/use the medication as prescribed or intended. [8]
- unlicensed medicines ('specials') are being prescribed when an alternative medicine or formulation will provide the same therapeutic benefit.[9]
- non-drug measures can provide benefit, without adverse effects.[10]

If a medicine is no longer considered appropriate and is to be stopped, this should be discussed and a decision agreed between prescriber and patient. Good communication is essential for successful withdrawal of therapy that is no longer considered appropriate. [11]

The information in this table should be used as a pragmatic decision aid, in conjunction with other relevant, patient specific data.

If therapy is considered appropriate, it should be continued. The information in the clinical and cost risk columns is the risk of continuing therapy based on maintenance doses and aimed to highlight areas which may be considered as a priority to focus on.

BNF Chapter 1 - Gastrointestinal system

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
H2 blockers / PPIs	Check if there is a valid indication for prescribing e.g. is an NSAID still being taken? [6] There has been no proven peptic ulcer, GI bleeding or dyspepsia for 1 year. Continued use may contribute to C difficile infection. [12]	Amber	PPI: Red
Laxatives	Previous use of opioid analgesics has reduced or stopped. Regular bowel movements occur without difficulty. Patient is eating & drinking and has an adequate fluid intake. If >1 laxatives are used, reduce and stop one at a time. Reduce stimulant laxative first, increase the dose of the osmotic laxative if necessary. Restart laxatives if relapse occurs. [13]	Amber	Amber

BNF Chapter 2 - Cardiovascular system

BNF class / Drugs	*Considerations to optimise medicines use*	Clinical Risk	Cost Risk
Antihypertensives - ACE inhibitors, beta blockers, angiotensin II receptor blockers, diuretics, calcium channel blockers	Check if there is a valid indication for prescribing, is the BP at a normal level or too low? [14] Do the known possible adverse drug reactions outweigh the possible benefits e.g. risk of falls; loop diuretic for ankle oedema – would compression hosiery be more appropriate? [15] If >1 antihypertensives are used, stop 1 at a time, maintaining the dose of the others without change. Restart antihypertensives if BP increases above 90 mm Hg diastolic and/or 150mm Hg systolic (160mm Hg if no organ damage). [6]		ARB & CCB: Red ACEI & BB:Amber
Nitrates	The patient has not had chest pain for 6 months. [6] The patient has reduced mobility. [16]		
Statins / lipid lowering drugs	Re-evaluate the patients risk profile for primary & secondary prevention of cardiovascular disease – is there a valid indication for prescribing? [17] Stop in metastatic disease.		Red
Aspirin	Check if there is a valid indication for prescribing e.g. re-evaluate the patients risk profile for primary prevention.[15] Do the known possible adverse drug reactions outweigh the possible benefits? [6] Is a dose of >150mg/day being used for a cardiovascular indication? [15] Is aspirin being used for dizziness which is not clearly attributable to cerebrovascular disease? [15]	Amber	

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Dipyridamole	Clopidogrel is now preferred over dipyridamole as more clinically and cost effective. [15, 18]		
Anticoagulants – oral and injected	Are LMWHs/oral anticoagulants prescribed following hip/knee replacement surgery still required? [19] Stop warfarin if the risk of falls outweighs the benefits. [16] Long term warfarin use (>6 months) is not recommended when the VTE was provoked by surgery, non surgical trigger factors or the VTE occurred in the calf only. [15, 20]	Amber	
Peripheral vasodilators	Check if there is a valid indication for prescribing. Clinical effectiveness often not established. [19] Do the known possible adverse drug reactions outweigh the possible benefits? [6]		
Digoxin	Check if there is a valid indication for prescribing. Do the known possible adverse drug reactions outweigh the possible benefits? [6] e.g. if there is an increase in toxicity, decrease oral fluid intake. [16] Long term digoxin at >125mcg/day in patient with impaired renal function can lead to an increased risk of toxicity. [15]	Amber	

BNF Chapter 3 - Respiratory system

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Theophylline	Monotherapy in COPD is not appropriate - safer, more effective alternatives are available. [15]		
Oral corticosteroids	Prednisolone maintenance in COPD is not usually recommended. [21, 22] The magnitude and speed of dose reduction and withdrawal should be determined on a case by case basis. Gradual withdrawal should be considered for those who have received more than 3 weeks treatment, those who have received more than 40mg prednisolone daily (or equivalent) or have other possible causes of adrenal suppression. [15, 19]	Amber	Amber
Inhaled corticosteroids	In asthma – review every 3 months, has control been achieved, if yes: reduce dose slowly (by 50% every 3 months) [19] In COPD – if an inhaled corticosteroid is not appropriate, a long acting antimuscarinic bronchodilator can be used with a long acting beta2 agonist. [21]	Amber	Red

BNF Chapter 4 - Central Nervous system

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Benzodiazepines	Is use required if physical and psychological health and personal circumstances are stable? If the patient is willing, committed and compliant, and has adequate social support, refer to a withdrawal clinic. [23] Withdrawal should be gradual to avoid confusion, toxic psychosis and convulsions. [19] With long term use, risk of adverse effects including falls, exceeds therapeutic benefit of continued use. [15, 19, 24]	Amber	
Antipsychotics	Check if there is a valid indication for prescribing. Do the known possible adverse drug reactions outweigh the possible benefits? [6] In dementia patients with behavioural and psychological symptoms, review and discontinue unless there is extreme risk or distress for the patient. [26] Standardized symptom evaluations and drug cessation attempts should be undertaken at regular intervals. [27, 28] Are chlorpromazine or trifluoperaizine being taken with other medicines that have anticholinergic activity and can increase risk of cognitive impairment e.g. TCADs, oxybutynin, chlorphenamine? [7] Withdrawal after long term therapy (1-2 years) should be gradual and closely monitored to avoid relapse. [19]	Amber	Red
Antidepressants - Selective serotonin reuptake inhibitors (SSRIs), Tricyclic antidepressants (TCADs), others e.g. MAOIs, agomelatine, duloxetine, reboxetine, venlafaxine, mirtazapine	Check if there is a valid indication for prescribing. For a single episode of depression treat for 6-9 months; for multiple episodes, treat for at least 2 years, no upper duration of treatment has been identified. Dosulepin should not be prescribed. [25] Do the known possible adverse drug reactions outweigh the possible benefits? e.g. TCADs can worsen dementia, glaucoma, constipation, urinary retention; SSRIs may induce clinically significant hyponatraemia. [6, 15] Are TCADs being taken with other medicines that have anticholinergic activity and can increase risk of cognitive impairment e.g. chlorpromazine, oxybutynin, chlorphenamine? [7] Reduce dose of antidepressants gradually to avoid withdrawal effects. [19]	Amber	SSRI: Red Others: Amber
Opioid analgesics	Is pain still severe enough to warrant a regular opioid? The risk of falls/constipation can outweigh the benefits. Consider non-drug options, switch to regular paracetamol. [8] Review laxatives.	Red	Red
Levodopa – carbidopa	Check if there is a valid indication for prescribing. Do the known possible adverse drug reactions outweigh the possible benefits? [6]		Amber
Drugs for dementia	If MMSE <10, medicines may be continued if they help with behaviour. [16] NICE recommends memantine if MMSE<10. Review benefit, use should only continue if the MMSE score is ≥10 and treatment has a worthwhile effect on the global, functional or behavioural symptoms. [29]		Amber

BNF Chapter 5 – Infections

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Antibacterials	Check if there is a valid indication for prescribing. Inappropriate uses – a bacterial infection has resolved; a viral infection has been diagnosed; prophylactic treatment prescribed but no pathogen isolated.[19] Treatment of asymptomatic bacteriuria (ASB) in older patients and diabetes patients has no beneficial effects.[30] There is a lack of evidence to evaluate the effect of preventing catheter associated-ASB with antibiotics.[31] Is fluid intake adequate?	Amber	Red
Antifungals	Skin scrapings should be taken if systemic therapy is being considered or if there is doubt about the diagnosis. When a course of treatment of appropriate length has been finished, do not continue indefinitely e.g. oral and topical nystatin [19] For finger and toe nail infections, cure is achieved in only a minority of patients, the relapse rate is high.[32]		

BNF Chapter 6 - Endocrine system

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Bisphosphonates	Check if there is a valid indication for prescribing. Has treatment been taken for 5 years or more? [33] Do the known possible adverse drug reactions outweigh the possible benefits? [6] If the patient is at low risk of falls, are these still needed? [8,16] Prolonged immobility is a risk factor for low BMD.[34]		Amber

BNF Chapter 7 - Obstetrics, gynaecology & urinary tract disorders

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Alpha blockers	Check if there is a valid indication for prescribing. Use is generally not indicated if a patient has a long term (>2 months) catheter in situ.[15]		
Antimuscarinics	Check if there is a valid indication for prescribing. Review effectiveness after 3-6 months.[19] Check if continence pads are also used, is concomitant use necessary? [35] Do the known possible adverse drug reactions outweigh the possible benefits? [6] e.g. postural hypotension, urinary retention, constipation. Oxybutynin will decrease MMSE score in patients with dementia. [15, 16] Are antimuscarinics being taken with other medicines that have anticholinergic activity and can increase risk of cognitive impairment e.g. chlorpromazine, TCADs, chlorphenamine? [7]		Amber

BNF Chapter 8 - Malignant disease & immunosuppression

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Cytotoxics, immunosuppressants	What outcome is expected, do the known possible adverse drug reactions outweigh the possible benefits? [6, 10] Refer to doctor who initiated treatment.	Amber	Red

BNF Chapter 9 - Nutrition & blood

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Sodium, potassium & iron supplements	Check if there is a valid indication for prescribing, do the known possible adverse drug reactions outweigh the possible benefits.[6]		
Vitamins	Check if there is a valid indication for prescribing, e.g. does the patient have a disorder which requires vitamin & mineral supplements. [6,19]		Amber
Calcium + vitamin D	Does the patient have adequate levels through diet/sunlight exposure? If the patient is not mobile, is this still needed? [8]		
Sip feeds	Check if there is a valid indication for prescribing. Has a dietician recently reviewed the patient; is the patient able to prepare, or have someone else prepare fortified food and therefore does not need sip feeds. [8]		Red

BNF Chapter 10 - Musculoskeletal & joint diseases

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
NSAIDs	Check if there is a valid indication for prescribing. Is an NSAID still needed/appropriate e.g. long term treatment of gout but no prophylaxis is prescribed. [15] Do the known possible adverse drug reactions outweigh the possible benefits e.g. >3 months use for symptom relief in mild osteoarthritis, use in patients with severe hypertension/heart failure/chronic renal failure. [6,15] If topical NSAIDs are continued indefinitely, review the need for use; short courses are generally advised.[19]	Amber	Amber
DMARDs	Discontinue penicillamine if there is no improvement within 1 year. [19] Consider withdrawal of azathioprine and ciclosporin if there is no improvement within 3 months of use. [19] Refer to doctor who initiated treatment.	Amber	
TNF inhibitors	Psoriatic arthritis/ Ankylosing spondylitis - discontinue adalimumab, etanercept and infliximab if there is inadequate response after 12 weeks.[19] Rheumatoid arthritis/Juvenile idiopathic arthritis – withdraw adalimumab, etanercept and infliximab if response is not adequate within 6 months.[19]	Red	Red

BNF Chapter 11 - Eye

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Eye drops/ointments	Review need for preservative free eye drops - is there a valid indication for prescribing (e.g. previous preservative toxicity), are eye drops instilled more than 4 times per day? [36, 37] Have antibiotic preparations been continued without a review or stop date.[19]		

BNF Chapter 12 - Ear, nose & oropharynx

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Drops, sprays, solutions etc	Is the medicine still required? Have antibiotic / steroid / sympathomimetic preparations been continued without review or a stop date?[19]		

BNF Chapter 13 – Skin

BNF class / Drugs	Considerations to optimise medicines use	Clinical Risk	Cost Risk
Creams, ointments	Has the condition resolved and continued use may cause adverse effects or exacerbate the condition e.g. preparations containing antibacterials or corticosteroids.[19] Is the patient using sufficient emollient to avoid use of steroids or development of ulcers? [8]	Amber	

NICE 'Do Not Do' Recommendations - http://www.nice.org.uk/usingguidance/donotdorecommendations/search.jsp

The NICE 'do not do' recommendations database contains all the 'do not do' recommendations that have been made since 2007. During the process of guidance development, NICE's independent advisory bodies often identify NHS clinical practices that they recommend should be discontinued completely or should not be used routinely. This may be due to evidence that the practice is not on balance beneficial or a lack of evidence to support its continued use. These have been abstracted from NICE cancer service guidance, clinical guidelines, interventional procedures and technology appraisals guidance.

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