Deprescribing: A Practical Guide

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

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Background

The NHS spends £8 billion on medicines a year and in 2014 issued over 1.4 billion prescription items[1.] 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.

Older people generally have a higher prevalence of multiple co-morbidities and are therefore more likely to be prescribed many different medications to treat these conditions. Pharmacokinetics and pharmacodynamic changes associated with ageing and disease coupled with polypharmacy increases the risk of adverse drug reactions (ADR) and drug-drug interaction in the elderly population. It has been estimated that there is a 5% chance of an ADR if a patient is taking one or two medicines compared to 20% if they are on more than 5 or more medicines.
Hospital admissions as a consequence of adverse drug reactions have been reported to be around 5%.

Prescribing principles should be considered to ensure medicines are used optimally. These include use of non-drug therapies; being cautious about unproven indications; vigilance to adverse effects of medicines and educating patients about these effects and any monitoring 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. If therapy is considered appropriate, it should be continued. All changes must be communicated with the patient and/or their carer

Factors to consider when deciding if a medicine can be stopped include the patient's wishes, clinical indication and benefit, appropriateness, duration of use, adherence and the prescribing cascade. However, withdrawing medicines may be the best clinical decision

There are different approaches to stopping medicines:

- 'Stepwise' approach

Useful if the patient is well and clinically stable but there is a risk that multiple changes in drugs will destabilise their situation. Tapering the dose helps reduce the likelihood of an adverse withdrawal event for some medicines.

- 'All at once'

Useful if the patient is unwell as a result of likely drug side effects or in a safe monitored environment (e.g. admission to hospital).

- 'Mixed' approach

In practice, often several drugs can be stopped or reduced at once with little chance of harm. However, certain drugs (e.g. antidepressant and antipsychotic drugs) will need to be withdrawn more cautiously. In these situations it should be documented clearly which drugs can be stopped immediately and which drugs are to be withdrawn more cautiously.

Target population

Consider patient groups that are likely to be taking many medicines and are particularly vulnerable to adverse drug reactions: -

- **Elderly (>75y) frail patients**; general clinical indictors of deterioration and frailty associated with advanced age and / or disease:[2]
  - Breathless at rest or on minimal exertion
  - Progressive weight loss (>10% over last six months).
  - History of recurring or persistent infections and/or pressure ulcers
- **Housebound patients**
- **Vulnerable patients**
- **Polypharmacy** - Patients who are taking large numbers of medication (>15)
- **Patients with indications of shortened life expectancy**: -

a) Where the answer to the question "Would you be surprised if this person were to die in the next 6-12m?" is No.
b) Choice/Need – where a patient with advanced disease is making a choice for comfort care rather than "curative" treatment
c) One clinical indicator often associated is patients requiring help with multiple activities of daily living either at home or in a care home due to:-
   1. Advanced organ failure
   2. Multiple morbidity causing significant impairment in day to day function
   3. Advanced dementia

- Also consider patients with polypharmacy where the indication is unclear and/or are otherwise fit and well.

Practical considerations for clinicians considering deprescribing

- Is there a valid or relevant indication for prescribing as assessed by symptoms, signs, and laboratory or diagnostic test results?
- Can non-drug measures provide benefit, without adverse effects?
- Define treatment goals and review these at appropriate intervals.
- Has pts condition/situation changed? E.g. less mobile =reduced need for anti-anginal.
- Adherence; is patient willing and/or able to take?
- The known possible adverse drug reactions outweigh the possible benefits or there is a risk of cumulative toxicity if particular medicines are taken together, or falls risk.
- Multiple drugs for same indication
- Unlicensed medicines ('specials') are being prescribed when a licensed alternative medicine or formulation will provide the same therapeutic benefit.
- Is there evidence of benefit?
- The medicine would not reasonably be expected to give benefit within the reasonable expectation of the patient's lifespan

Potential future benefit vs. life expectancy;
The King's fund report on polypharmacy[3] and medicines optimisation indicates that preventive treatments become less meaningful as patients with multi-morbidity age and become frail, and prescribers must identify the appropriate time to broach the subject of scaling back or stopping treatment. It further proposes that the palliative approach should be considered the last phase in the continuum of good care for patients with multi-morbidity in whom multiple active treatments are no longer appropriate and such an approach could be taken earlier in the trajectory of life-limiting illnesses. However, once patients are identified as being suitable for a palliative approach, there needs to be an active strategy to engage patients and families in the process. Open and transparent discussions with patient, and relatives/carers where must be had where appropriate.

Medication Review

Clinical medication reviews are a critical review 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.

- A medication review should be conducted at least annually.
- Identify drug and check that it does have a valid and current indication

Questions to ask: -
- Do you understand what you are taking each medicine for?
- Are you taking all of your medication according to the directions given?
- Are there any medicines you miss out or forget to take?
- Are you able use/take the medicine properly?
- Do you feel you are having side effects from your medicines?
- Do you have any other concerns about your medicines?

Medicines can be grouped as:
1. Those that keep the patient well and improve day-to-day quality of life e.g. analgesics, levothyroxine or anti-anginals. In some cases, if these medicines are stopped, the patient may become ill or unable to function. However, some drugs may be able to be stepped down, stopped or used on an as required basis (prn) e.g. a proton pump inhibitor.
2. Those that are used for the prevention of illness in the future e.g. statins, aspirin, warfarin or bisphosphonates. A decision about whether to stop medicines such as these should include consideration of the risks and benefits of treatment for that particular patient, the length of time required for benefit and the life expectancy of the patient.

Risk vs benefits of medication

The **'**number needed to treat' (NNT) is a measure used in assessing the effectiveness of a particular medication. The NNT is the *average* number of patients who are required to be treated for one benefit to be realised, compared with a control in a *clinical trial*. It is defined as the inverse of the absolute risk reduction. So if treatment with a medicine for one year reduces the death rate over five years from 5% to 1% (a very effective treatment), the absolute risk reduction is 4% (5 minus 1), and the NNT is 100/4 =25.
In other words, the number needed to treat with that medicine for one year to prevent one death is 25. The ideal NNT is 1, where everyone improves with treatment.
The higher the NNT, the less effective the treatment.

There is always need to consider:

What is the outcome being avoided? Death is more significant than a vertebral fracture, but different outcomes will be more or less significant to individual patients.

Over what period does the benefit accrue? Two drugs may have the same NNT to avoid one death, but the drug that achieves that over 6 months is more effective than the drug which takes 10 years. You can put NNTs on the same timescale by multiplying or dividing the NNT appropriately, but there is an assumption that benefit accrues consistently over time (not an unreasonable assumption, but one that is difficult to test).

What are the TRUE costs of the drug? This will include monetary costs, but also costs associated with treatment burden, and harm/side effects. A medicine might save the life of one of the 25 people who take it, but if it led to all 25 suffering a debilitating side effect, its costs may outweigh its benefits.
NNTs are only estimates of average benefit, and it is rarely possible to know precisely what the likely benefit will be in a particular patient.
The 'uncertainty' in the number should be acknowledged since the construction of confidence intervals around NNT does not generally give a valid interval.

'**Number needed to harm' (NNH)** is a related measure which is the *average* number of people exposed to a medication for one person to suffer an adverse event. Again, a defined end point (e.g. GI bleeding or renal failure) must be specified and confounders may require correction of the raw data i.e. in very elderly patients the risk of particular side effects such as confusion and falls may be higher than on average. In discussion, the overall benefit – risk ratio (NNT / NNH) requires to be 'weighed' in the individual patient and may vary considerably in people with polypharmacy depending on absolute risk, life expectancy and vulnerability to adverse drug events.

When discussing the risks and benefit of any treatment with patients[4]:

- Use absolute risk rather than relative risk (e.g. the risk of an event increases from 1 in 1000 to 2 in 1000, rather than the risk of the event doubles)
- Use natural frequency rather than a percentage (e.g. 10 in 100 not 10%)
- Use data consistently (e.g. use the same denominator to compare risk: 7 in 100 for one risk and 20 in 100 for another, rather than 1 in 14 and 1 in 5)Present a risk over a defined time period (months or years) if appropriate (e.g. if 100 people are treated for 1 year, 10 will experience a given outcome)
- Include both positive and negative framing (e.g. treatment will be successful for 97 out of 100 patients and unsuccessful for 3 out of 100 patients)
- Avoid terms such as rare, unusual and common and use numerical data if available, as different people interpret such terms in different ways.

Drug effectiveness summary; Numbers needed to treat[5]

ACE Inhibitors			
Indication	**NNT per annum**	**To do what**	**Notes**
Elevated Vascular Risk [Normal LV]	280	Prevent one death [all causes]	Trial ran for 5 years
Impaired LV Function-mild/moderate	30	Prevent one death [all causes]	Likely symptomatic benefit
Combination Therapy including ACE			
ACE + Indapamide	55	Prevent one stroke	Trial ran for 5 years
Secondary Prevention post MI > 80 yrs [ACE+ BB +ASP+ STAT]	33	Prevent one Death	
ACE + Beta blocker for impaired LV	14	Prevent one death	Likely symptomatic benefit
Impaired LV Mild /moderate ACE + BB	15	Prevent one Death	Likely symptomatic benefit
Impaired LV Severe ACE + BB + Spiro	7	Prevent one Death	Likely symptomatic benefit
ASPIRIN Primary Prevention	Enormous	No longer recommended	
ASPIRIN Post Stroke/ TIA	100	Prevent one stroke or MI or Vascular Death	
DYPYRIDAMOLE In addition to ASPIRIN post stroke/TIA	100	Prevent one vascular event	BNF caution in cardiac disease
CLOPIDOGREL post stroke or TIA	Equivalent to Dypridamole + Aspirin	Prevent one vascular event	
ATRIAL FIBRILLATION			
AF + another risk factor WARFARIN v ASPIRIN	40	Prevent one Stroke- no difference in mortality	
AF (Secondary Prevention after Stroke) WARFARIN v ASPIRIN	16	Prevent one stroke	
ASPIRIN	No effect		
HYPERTENSION	BP > 140/90 trial predominantly systolic hypertension		
Cardiovascular morbidity and mortality >80 yrs			
Low Risk	80	Avoid one cardiovascular event	2 years for effect
High Risk [Diabetes, vascular disease]	32	Avoid one cardiovascular event	2 years for effect
Cerebrovascular morbidity and mortality > 80 yrs	122	Avoid one cerebrovascular event	2 years for effect
Cardiovascular morbidity and mortality > 60yrs			
Low Risk	107	Avoid one cardiovascular even event	4.5 years for effect
High Risk [Diabetes, vascular disease]	40	Avoid one cardiovascular event	4.5 years for effect
HYPERTENSION ***(Tayside Day Hospital cohort)***	36	Prevent one death	NNT 30 if also Cardiovascular Disease

STATINS	NNT per annum	To do what	
MI or Angina	80 to 170	Major Coronary Event.	No difference in Mort to 5 years
Post Stroke [Atrova 80 v Placebo]	165	One Cardiovascular Event	No difference in Mort to 5 years
Tight HbA1c Control Strategies			
Microvascular Risk			
ADVANCE [HbA1c7.3% v 6.5%]	333	One microvascular event [predominantly retinal]	Trial ran 5 years
UKPDS [HbA1C 7.9% v 7%]	200	One microvascular event [predominantly retinal]	Trial ran 10 years
Macrovascular Risk	No difference at 10 years		
Metformin			
Overweight /obese Diabetic	50	One MI or Diabetes event or Death	10 year follow up
Standard < 140 BP control in diabetes any means	57	One Stroke or major diabetes event or death	8 year follow up
Tight BP control in diabetes			
BP 120 v BP 134	500	Prevent one stroke	4 years minimum for effect
Number needed to harm for this strategy	50		
Osteoporosis [Alendronate + Calcium/VitD]	**2y Prevention Vertebral #**	**2y Prevention Hip #**	**Notes for Osteoporosis**
70 -74 years	65	430	NNT per annum to prevent further #
75 - 79 years	45	180	Potential symptomatic benefit re Vertebral #
80 - 84 years	60	105	**Normally 2 years needed to see effect.**
85 - 89 years	55	45	
90+years	40	40	

High Risk Combinations	**Drugs for which specialist advice is strongly advised before altering include:**	**Drugs that are tolerated poorly in frail patients**	**STOP if dehydrated**
These combinations are noted to be particularly high risk and should be looked for and stopped at every drug review. **NSAID** +ACE or ARB + Diuretic ['Triple Whammy' combo] +eGFR <60 +diagnosis heart failure +Warfarin +age >75 without PPI **Heart Failure** +Glitazone +NSAID +Tricyclic antidepressant **Warfarin** + Another antiplatelet +NSAID +Macrolide +Quinolone +Metronidazole +azole antifungal	• anticonvulsants for epilepsy • antidepressant, antipsychotic and mood stabilising drugs (eg lithium) • drugs for the management of Parkinson's Disease • amiodarone • Disease-modifying antirheumatic drugs	It is particularly important to clarify if patients on the following have a **Valid and Current Indication** and are still felt to be effective**.** • Digoxin in higher doses 250 microgram + • antipsychotics • Tricyclic antidepressants • Benzodiazipines particularly long term • Anticholinergics • Phenothiazines [eg prochlorperazine] • Combinations painkillers [eg cocodamol v paracetamol]	• ACE inhibitors • Angiotensin 2 Receptor Blockers • NSAIDs • Diuretics • Spironolactone , Eplerenone • Metformin **In Dehydrated Adults** For example those suffering from more than minor vomiting/diarrhoea. Restart when well (eg 24 to 48 hrs eating and drinking normally). Adults with advanced heart failure can decompensate rapidly off drugs and adults with more than minor dehydration in this group need urgent specialist advice. https://www.derbyhospitals.nhs.uk/easysiteweb/getresource.axd?assetid=277344&type=0&servicetype=1

PRACTICAL GUIDANCE FOR STOPPING MEDICINES

General Advice

- If intolerable symptoms occur following a decrease in the dose or after the medicine has been stopped, then it may be necessary to restart the previously prescribed dose and then try tapering again, but at a more gradual rate.

> **A general guide to tapering medicine:**
> - Halve the dose. At the next scheduled visit review progress, then either:
> - Maintain (at half dose)
> - Continue to taper (e.g. quarter dose)
> - Stop

- When initiating any new medication, "start low and go slow" especially in elderly patients.
- Avoid prescription cascades: where a new drug is prescribed to 'treat' an adverse reaction to another drug in the mistaken belief that a new medical condition requiring treatment has developed
- > 4 medications is linked to an increased risk of falls

BNF Chapter 1 – Gastro-intestinal system

Drugs	Considerations to optimise medicines use	Withdrawal
H2 blockers	Check if there is a valid indication for prescribing, is there an on-going clinical need?	Taper gradually Rebound dyspepsia has also been described after stopping H_2RA therapy abruptly
Proton Pump Inhibitors	Check if there is a valid indication for prescribing, is there an on-going clinical need? PPIs have been found to be a risk factor for recurrence of clostridium difficile. Reduction of unnecessary use may reduce incidence of infection PPI use may increase fracture risk	Consider alternate day dosing. Consider stepping down to an H_2RA if a more gradual taper is required Stopping PPIs suddenly can cause rebound hyper-secretion of acid
Laxatives	Has the previous use of opioid analgesics been reduced or stopped? Are regular bowel movements occurring without difficulty? Is patient eating and 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.

BNF Chapter 2 – Cardiovascular system

Drugs	Considerations to optimise medicines use	Withdrawal
Antihypertensives	Is the BP too low?	If >1 antihypertensives are used, stop 1 at a time, maintaining the dose of the others without change. Most antihypertensives should be tapered. Taper dose at approximately monthly intervals, over three to six months. Restart antihypertensives if BP increases above target. Abrupt withdrawal of betablockers may cause rebound hypertension, tachycardia, arrhythmia or angina. Gradual dose reduction is required

Statins / lipid lowering drugs	Statins should not normally be stopped in patients where it has been started for secondary prevention.The decision to stop a statin is based on an assessment of individual benefits and risks. For example, stopping may be justified in a person at relatively low risk of a cardiovascular event (primary Prevention) who is also poorly compliant or experiencing troublesome adverse effects. Consider stopping in metastatic disease and other terminal illness	Statins can be stopped without the need for tapering.
Omacor (omega - 3 fatty acid compounds)	Omacor is used for hypertriglyceridaemia where fibrates have either not been tolerated or not successful in reducing triglycerides sufficiently to prevent pancreatitis. Evidence shows a limited benefit for secondary prevention, patients on existing treatment for CVD should have this treatment reviewed with a view to stopping at their next annual review.	Omacor can be stopped without the need for tapering
Aspirin	Check indication for doses >150mg/day as this is unlikely to be cardiovascular **Aspirin is no longer recommended for primary prevention** of CV events, including in people with hypertension or diabetes **Aspirin monotherapy is no longer recommended for prevention of stroke in AF**	Aspirin can be stopped without the need for tapering.
Dipyridamole	Clopidogrel[8] is preferred as more clinically and cost effective. If monotherapy for secondary prevention consider alternative antiplatelet.	Dipyridamole can be stopped without the need for tapering

BNF Chapter 3 – Respiratory system

Drugs	Considerations to optimise medicines use	Withdrawal
Inhaled corticosteroids (asthma)	In stable patients consider stepping down therapy. After treatment is stepped down the patient should have their treatment reviewed within 6-8 weeks. Stepping down should be explained to the patient and be part of their personalised asthma action plan.	Doses of medication can be reduced by 25-50% every 3 months for stable patients while maintaining symptom control.
Inhaled corticosteroids (COPD)	In COPD – if an inhaled corticosteroid is not appropriate, a long acting antimuscarinic bronchodilator can be used with a long acting beta2 agonist.	Although there are no guideline recommendations on ICS withdrawal in COPD, trials suggest withdrawal of long term ICS in patients with COPD increases the risk of exacerbation,[9,10,11] as such a step wise reduction as for asthma may be best, monitoring patients closely for deterioration
Antihistamines (hay fever/allergy)	Check is still required, consider as required use	Antihistamines can be stopped without tapering

BNF Chapter 4 – Central Nervous system

Drugs	Considerations to optimise medicines use	Withdrawal
Benzodiazepines	Regular and prolonged use of hypnotics should be avoided because of the risk of tolerance to effects, dependence and an increased risk of adverse events. Hypnotics to be prescribed at the lowest effective dose that can treat the patients' symptoms. Hypnotics should be avoided in the elderly who are at greater risk of becoming ataxic and confused, leading to falls and injury. Long-term use (>4 weeks) is **not** recommended	Withdrawal should be gradual to avoid confusion, toxic psychosis and convulsions. [12] With long term use, risk of adverse effects including falls, exceeds therapeutic benefit of continued use. Patients who have taken benzodiazepines on a long term basis should be withdrawn gradually over a number of months (e.g. six months). The longer a patient has been taking a benzodiazepine, the more likely they are to develop dependence and tolerance. Abrupt withdrawal may result in confusion, toxic psychosis, seizures or a condition termed benzodiazepine withdrawal syndrome which is similar to delirium tremens. Typical symptoms of this include insomnia, loss of appetite, weight loss, sweating, perspiration, tinnitus and disturbances of perception. Benzodiazepine withdrawal syndrome can occur within one day of stopping a short-acting benzodiazepine or up to three weeks after stopping a long-acting benzodiazepine Withdrawal symptoms can continue for weeks or months after stopping a benzodiazepine Slowly taper the dose in steps of approximately one-eighth of the daily dose every two weeks. If withdrawal symptoms occur, maintain at the current dose until symptoms settle and then continue to taper, usually at a slower rate. **Alternative withdrawal** 1. Transfer patient to an equivalent daily dose of diazepam, preferably taken at night 2. Reduce the dose of diazepam every two to three weeks by 2 or 2.5 mg. If withdrawal symptoms occur, maintain this dose until there is improvement. 3. Continue to reduce the dose, if necessary by smaller amounts. It is better to reduce too slowly rather than too quickly. 4. Stop diazepam completely. The withdrawal period may vary from about four weeks to more than one year
Antiemetics	Review why antiemetic prescribed? Is it still required? Metoclopramide should only be prescribed in adults for prevention of postoperative nausea and vomiting; radiotherapy-induced nausea and vomiting; delayed chemotherapy-induced nausea and vomiting; and symptomatic	Can be stopped without tapering.

	treatment of nausea and vomiting, including that associated with acute migraine and only for short-term use (up to 5 days)[13] Metoclopramide should not be prescribed in patients with Parkinson's Disease **Domperidone** has a similar mode of action to metoclopramide but has poor oral bioavailability. It is however less likely to cause extrapyramidal side effects. It is preferable for use in patients with Parkinsonism MHRA (Volume 5, Issue 10, May 2012) highlights a small increased risk of serious ventricular arrhythmia or sudden cardiac death. These risks may be higher in patients older than 60 years and in patients who receive daily oral doses of more than 30 mg. Domperidone is also now contraindicated in people with severe hepatic impairment, conditions where cardiac conduction is, or could be impaired, underlying cardiac diseases e.g. CCF, patients receiving other medications known to prolong QT interval or potent CYP3A4 inhibitors.[14]	
Antipsychotics	Check if there is a valid indication for prescribing. Do the known possible adverse drug reactions outweigh the possible benefits? In dementia patients with behavioural and psychological symptoms, review quarterly[15] and discontinue unless there is extreme risk or distress for the patient. Standardized symptom evaluations and drug cessation attempts should be undertaken at regular intervals. Consider non-pharmacological interventions e.g. massage aromatherapy or other psychosocial interventions based on individual patient interests.	Withdrawal after long term therapy (1-2 years) should be gradual and closely monitored to avoid relapse
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	Taper slowly - Abdominal cramping, anger, anxiety, chills, diaphoresis, diarrhoea, insomnia and restlessness
Antidepressants	Patients who have benefited from antidepressant therapy should continue treatment for 6 months after remission of a single episode, history of recurrent depression continue for at least 2 years[16]; no upper duration of treatment has been identified. Do the known possible adverse drug reactions outweigh the possible benefits? E.g. Tricyclic antidepressants (TCAs) can worsen dementia, glaucoma, constipation, urinary retention; SSRIs & TCAs may induce clinically significant hyponatraemia. Are Tricyclic antidepressants being taken	Antidepressants should be tapered rather than stopped abruptly, to reduce the risk of developing a discontinuation syndrome and to allow time to assess the possible re-emergence of depressive symptoms Antidepressant discontinuation syndrome is more likely with a longer duration of treatment and a shorter half-life of the treatment drug.[15] Patients may experience withdrawal symptoms but usually these are mild and self-limiting. If these symptoms are not tolerated, it may be necessary to resume the previous dose and then reduce the antidepressant more slowly

	with other medicines that have anticholinergic activity and can increase risk of cognitive impairment e.g. chlorpromazine, oxybutynin, chlorphenamine?	**SSRIs and venlafaxine** Taper slowly over (at least 4 weeks .A longer discontinuation may be required for drugs with shorter half-life or patients who have been taking for > 8 weeks. e.g. reduce by 25% every four to six weeks for drugs with a shorter half-life Fluoxetine at low doses may not need to be tapered, as it has a long half-life. **TCAs** Tricyclic and related antidepressants (e.g. mianserin) should be withdrawn slowly e.g. reduce by 25% every four weeks. [17]

Antidepressant Discontinuation Syndrome[12]

Antidepressant discontinuation syndrome can occur with rapid discontinuation of any antidepressant. Symptoms are variable.

Typical symptoms include – **F**lu-like symptoms, **I**nsomnia, **N**ausea, **I**mbalance, **S**ensory disturbances and **H**yper arousal (anxiety/agitation) (FINISH).

Symptoms are likely to appear within one week of rapid dose reduction or abrupt discontinuation of an antidepressant. Symptoms are often mild and short lived and resolve without treatment in about ten days. For patients with more severe symptoms the pre-reduction dose may need to be restarted which usually results in resolution of symptoms within 24 hours. Subsequent tapering then needs to be at a slower rate.

BNF Chapter 5 - Infections

Drugs	Considerations to optimise medicines use	Withdrawal
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. Treatment of asymptomatic bacteriuria (ASB) in older patients and diabetes patients has no beneficial effects. There is a lack of evidence to evaluate the effect of preventing catheter associated-ASB with antibiotics. Is fluid intake adequate?	Antibacterials can be stopped without tapering
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. For finger and toe nail infections, cure is achieved in only a minority of patients, the relapse rate is high. Infections may take several months to clear as the infected nail grows out and is removed	Antifungals can be stopped without tapering

BNF Chapter 9 – Nutrition and blood

Drugs	Considerations to optimise medicines use	Withdrawal
Iron supplements	Give oral iron and continue until 3 months after deficiency is corrected	Iron supplements can be stopped without tapering
Vitamin supplements	Check if there is a valid indication for prescribing, e.g. does the patient have a disorder which requires vitamin & mineral supplements	Vitamin supplements can be stopped without tapering
Sip feeds	Check if there is a valid indication for prescribing. Proper diagnosis of malnutrition should be established using the MUST tool[18] 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	Sip feeds can be stopped without tapering. Ensure weight is monitored.

BNF Chapter 10 – Musculoskeletal & joint diseases

Drugs	Considerations to optimise medicines use	Withdrawal
NSAIDs (oral and topical)	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? 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? If topical NSAIDs are continued indefinitely, review the need for use; short courses are generally advised Consider stopping NSAID therapy when the risks associated with treatment outweigh the benefit. Risks associated with NSAIDs usually relate to declining renal function in the older age group, adverse gastrointestinal effects and CV risks. NSAIDs may also reduce the effectiveness of antihypertensive therapy	Some patients may tolerate abrupt discontinuation but tapering the dose allows for other analgesics to be introduced or increased Consider prn use or regular use at a lower dose Can be stopped abruptly **or** Halve the dose for two to four weeks then stop Review the need for gastric protection therapy i.e. PPI or H_2RA.[12]

Miscellaneous

Drugs	Considerations to optimise medicines use	Withdrawal
Drops, sprays, solutions	Is the medicine still required? Have antibiotic / steroid / sympathomimetic preparations been continued without review or a stop date?	Can be stopped without tapering
Creams, ointments	Has the condition resolved and continued use may cause adverse effects or exacerbate the condition? E.g. preparations containing antibacterials or corticosteroids. Is the patient using sufficient emollient to avoid development of ulcers?	Can be stopped without tapering

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Top medicines to consider 'trial without'

As a patient's circumstances change i.e. they become elderly, frail, problematic polypharmacy, at risk of falls etc., it is important to reconsider the benefit to harm ratio of medicines and reassess what we are trying to achieve for that patient. The following medicines warrant particular review.

Medicine	Comments	Rationale/Evidence
1. Quinine	Treatment should be interrupted at intervals of approx. 3 months to assess need for further quinine treatment (see BNF)	BNF recommends a trial discontinuation with long term use, not currently recommended by NICE or NHS evidence. http://arms.evidence.nhs.uk/resources/hub/1028784/attachment http://cks.nice.org.uk/restless-legs-syndrome#!scenario
2. Betahistine, prochlorperazine metoclopramide domperidone	Review indication / on-going symptoms. Review ongoing need – easy to restart if symptoms return. Could consider reducing betahistine 16mg TDS to 8mg TDS	**Metoclopramide** restricted to short-term use (up to 5 days) due to risk of neurological adverse effects; http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON300404 **Domperidone** is now restricted to use in the relief of nausea and vomiting and maximum treatment duration 7 days due to risks of cardiac side effects; http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON418518 **Betahistine;** insufficient evidence from RCTs to conclude if prevents Meniere's disease symptoms. The quality of trials suggesting it may help control vertigo, dizziness, or imbalance is limited. http://cks.nice.org.uk/menieres-disease#!supportingevidence1
3. Furosemide	Ensure on lowest effective dose – often gets stepped up but then not stepped back down again.	
4. Antidepressants	Taper SSRIs and venlafaxine over at least 4 weeks. Low dose Fluoxetine may not need to be tapered, due to a long half-life. A longer discontinuation may be required for drugs with shorter half-life or therapy duration > 8 weeks. E.g. reduce by 25% every four to six weeks. TCAs and related antidepressants (e.g. mianserin) should be withdrawn slowly e.g. by 25% every four weeks.	NICE recommend to continue medication for at least 6 months after remission of an episode of depression and reviewing patients for the need for continued antidepressant treatment beyond 6 months after remission, taking into account: •the number of previous episodes of depression •the presence of residual symptoms •concurrent physical health problems and psychosocial difficulties Depression in adults with a chronic physical health problem | 1-guidance | Guidance and guidelines | NICE
5. Anti-hypertensives	Review current BP control and consider if all antihypertensives are necessary. If appropriate to stop any, work backwards through algorithm. Most should be tapered. Taper dose at monthly intervals, over three to six months.	Consider risk of falls
6. Antipsychotics	Review quarterly if for behavioural symptoms in dementia Withdraw gradually after long term therapy (1-2 years) and monitor closely to avoid relapse.	DoH 2009. Banerjee, S. The use of antipsychotic medication for people with dementia: Time for action. A report for the Minister of State for Care Services
7. Weak opioid analgesics	Consider regular paracetamol as a potential alternative. Consider potential side effects such as constipation, confusion, risk of falls.	

<table>
<tr><td>8. PPIs</td><td>Stopping suddenly can cause rebound acid hyper-secretion, reduce to maintenance or PRN dosing for symptom control. Consider alternate day dosing or stepping down to an H2RA if a more gradual taper is required. Ensure if for gastro protection dose is lansoprazole 15mg or omeprazole 20mg.</td><td>Increased risk of C.diff (42%), osteoporotic fractures (29%), hypomagnesaemia (25%) usually > 1year treatment, Community Acquired Pneumonia (30%) within 14-30 days http://www.awmsg.org/docs/awmsg/medman/All%20Wales%20Proton%20Pump%20Inhibitor%20and%20Dyspepsia%20Resource%20Pack.pdf</td></tr>
<tr><td>9. Statins</td><td>Should not normally be stopped in patients where used for secondary prevention, individual discussion re pro’s and con’s and quality of life required.</td><td><table><tr><th>Primary prevention outcome</th><th>5 year NNT</th></tr><tr><td>All-cause Mortality</td><td>138</td></tr><tr><td>Total CVD events</td><td>49</td></tr><tr><td>Total CHD events</td><td>88</td></tr><tr><td>Total Stroke</td><td>155</td></tr></table>http://www.nice.org.uk/guidance/cg181/evidence/cg181-lipid-modification-update-full-guideline3</td></tr>
<tr><td>10. Nitrate monotherapy</td><td>If symptom free consider if diagnosis is still correct (can be historical based on symptoms). If symptomatic, review angina therapy and consider beta-blocker or verapamil/diltiazem.</td><td></td></tr>
<tr><td>11. Laxatives</td><td>If >1 laxatives are used, reduce/stop one at a time. Reduce stimulant laxative first, increase the dose of the osmotic laxative if necessary. Restart if relapse occurs. Give advice on lifestyle measures including increased dietary fibre.</td><td>Stimulant laxatives are licensed only for short-term use. Excessive doses of, or inadequate fluid intake with bulk-forming laxatives can cause intestinal obstruction. Inadequate fluid intake with lactulose or macrogols can be dehydrating.</td></tr>
<tr><td>12. NSAIDS</td><td>Any ongoing clinical indication? Can be stopped abruptly or halve the dose for two to four weeks then stop.</td><td>Consider associated risk with NSAIDs e.g. declining renal function in the elderly and adverse GI effects.</td></tr>
<tr><td>13. Iron Supplements</td><td>Should continue for 3 months after deficiency corrected. Can be stopped without tapering</td><td></td></tr>
</table>

References:
A practical guide to stopping medicines in older people. Accessed on 26/11/14. Available at http://www.bpac.org.nz/BPJ/2010/April/stopguide

With acknowledgement to Helen Gregory, North Derbyshire CCG.