SMRs: STOPP criteria and ACB

Hertfordshire and West Essex Integrated Care System

STOPP: a screening tool to support reviews of prescriptions for those **>65 years**, to help identify potentially inappropriate prescribing.

For each drug below, the STOPP criteria outlines clinical scenarios in which it should be considered for deprescribing.

**As stated by NICE (multimorbidity guidelines), "think carefully about the risks and benefits for people with multimorbidity, of individual treatments recommended in guidance for single health conditions. Discuss this with the patient alongside their preferences for care and treatment".*

Exercise **caution** if considering deprescribing the following drugs (consider continuing treatment, gradual withdrawal or specialist advice before stopping):

- ACEI and diuretics used in heart failure
- Amiodarone, calcium channel blockers, beta-blockers or digoxin used to control heart rate or rhythm
- Anticonvulsants used in epilepsy
- Antidepressant, antipsychotic or mood stabilizing drugs
- Antimuscarinic or other drugs used in Parkinson's disease
- Corticosteroids, DMARDs or immunosuppressant drugs

Priority areas to stop or reduce doses:

- Drugs with anticholinergic burden
- Medicines with increased risk of bleeding
- Medicines with increased risk of falls (e.g. those that cause hypotension, bradycardia, drowsiness)
- Drugs affecting and affected by renal function

STOPP		
GI system		
Drug	**STOPP Criteria**	**Notes**
Metoclopramide	In Parkinson's disease	Risk of exacerbating symptoms
	Continued use after maximum treatment of 5 days	
Domperidone	When use for indications other than nausea and vomiting	
	Continued use maximum treatment of 7 days	
	In underlying heart conditions (e.g. heart failure/arrhythmia)	
	With other medications associated with QT interval prolongation (e.g. SSRIs, quinine)	
	Concomitant CYP3A4 inhibitors (e.g. erythromycin, clarithromycin, ketoconazole, verapamil)	
PPIs (high dose)	In uncomplicated peptic ulcer (at treatment dose after 1-2 months)	If healed, offer low maintenance dose or 'as required' basis and review annually
Constipation causing medicines	Examples: • Anticholinergics • Iron • Opioids • Verapamil	Consider non-constipating alternatives

	• Aluminium antacids	
Antacids	Long term, frequent use of simple antacids	For short term symptom relief only, rather than prevention – address underlying cause
STOPP		
CV system		
Drug	**STOPP Criteria**	**Notes**
Digoxin	>125mcg and eGFR < 30ml/min	Consult with specialist
Thiazide diuretics	Hypokalaemia (potassium < 3.0mmol/L)	Review BP Consider risk of postural hypotension
	Hyponatraemia (sodium < 130mmol/L)	
	Hypercalcaemia (calcium > 2.65mmol/L)	
	Gout	May exacerbate condition
Loop diuretics	When prescribed to treat hypertension	Not recommended
	For ankle oedema without evidence of heart failure, liver failure, nephrotic syndrome, or CKD	Leg elevation and/or compression hosiery more appropriate
Aldosterone antagonists	Co-prescribed with potassium-retaining drugs (e.g. ACEIs) without regular monitoring of serum potassium	Monitor potassium every 6 months
Verapamil/diltiazem	In heart failure	May worsen heart failure
ACEi/ARBs	With hyperkalaemia	
	In combination	Unless under specialist advice
Calcium channel blockers	In chronic constipation	Switch to alternative CCB/antihypertensive or consider regular laxative
Centrally-acting antihypertensives	Examples: • Methyldopa • Clonidine • Moxonidine	Consider deprescribing unless clear intolerance of, or no response to other antihypertensives
Non-selective Beta blockers (e.g. sotalol/propranolol)	History of bradycardia, heart block or uncontrolled heart failure	May exacerbate bradycardia
	Asthma and/or COPD (requiring treatment)	May exacerbate bronchospasm
Aspirin	Long-term aspirin at doses >150mg per day	Increased risk of bleeding and no evidence for doses >75mg daily
	History of dizziness with no evidence of stroke	Increased risk of bleeding and no evidence to support use
	No history of coronary, cerebral or peripheral arterial occlusive symptoms (such as PAD, angina, TIA/stroke)	Not recommended in primary prevention
	History of peptic ulcer disease when prescribed without concomitant PPI	Add GI protection if aspirin is required

	In combination with warfarin or DOACs in atrial fibrillation (with no IHD/PAD diagnosis)	Increased risk of bleeds
	Monotherapy for stroke prevention in atrial fibrillation	Switch to anticoagulant
Aspirin plus clopidogrel	As secondary stroke prevention (unless coronary stent inserted in past 12 months or concurrent acute coronary syndrome or has symptomatic carotid arterial stenosis)	No evidence of benefit over monotherapy
Warfarin or DOACs	Prescribed >6 months for first deep vein thrombosis without continuing provoking risk factors (e.g. thrombophilia)	Lacks supporting evidence
	Prescribed >12 months for first pulmonary embolus without continuing provoking risk factors (e.g. thrombophilia)	
NSAID and warfarin or DOACs	Used in combination	Increased bleed risk – switch NSAID to alternative analgesia
STOPP		
Respiratory system		
Drug	**STOPP Criteria**	**Notes**
Anti-muscarinic bronchodilators (e.g. Tiotropium)	History of narrow angle glaucoma	May exacerbate symptoms
	History of bladder outflow obstruction	
Theophylline	As monotherapy for asthma or COPD	
Oral corticosteroids	Instead of inhaled corticosteroids for maintenance therapy in COPD	Risk of systemic side effects
STOPP		
Nervous system		
Drug	**STOPP Criteria**	**Notes**
Tricyclic antidepressants (TCA)	In dementia	Risk of worsening cognitive impairment
	In glaucoma	Exacerbate glaucoma
	With cardiac conductive abnormalities/arrhythmia	Pro-arrhythmic effects
	Constipation or with other medication likely to exacerbate constipation	Exacerbate symptoms
	Prostatism or history of urinary retention	Exacerbate symptoms
Benzodiazepines or hypnotics/Z-drugs	With acute or chronic respiratory failure i.e. pO2 less than 8.0 kPa and/ or pCO2 greater than 6.5 kPa	Risk of exacerbation of respiratory failure
	A fall in past 3 months	
	> 4 weeks use	No indication for long term treatment; risk of prolonged sedation, confusion, impaired balance, falls – slow withdrawal required
Anticholinergics	To treat extra-pyramidal side-effects of antipsychotic medications	Risk of anticholinergic toxicity

	In patients with delirium or dementia	Worsen cognitive impairment
SSRIs	History of hyponatraemia (sodium < 130mmol/l within the previous 2 months)	
Citalopram/Escitalopram	In QT-interval prolongation or with concomitant drugs that cause QT-interval prolongation	
First generation antihistamines (chlorphenamine, cyclizine, promethazine)	Prolonged use (>1 week)	Risk of sedation and anti-cholinergic side effects
Opiates	Use of long-term strong opioids as first line therapy for mild-moderate pain	
	Regular opioids for >2 weeks in those with chronic constipation without concurrent use of laxatives	Exacerbate constipation – review dose, consider regular laxative
	Long-term in those with dementia (except in palliative care or chronic pain syndrome)	Exacerbate cognitive impairment
	Long-term in those with recurrent falls	Risk of drowsiness, postural hypotension, vertigo
	Slow-release opioids in severe pain without short-acting opioids for breakthrough pain	Risk of persistence of severe pain
Acetylcholinesterase inhibitors (donepezil/memantine)	History of bradycardia (<60 beats/min)	Risk of cardiac conduction failure and syncope
	History of heart block or recurrent unexplained syncope	
	Concurrent treatment with drugs that reduce heart rate such as beta-blockers, digoxin, diltiazem, verapamil	

STOPP

Endocrine system		
Drug	**STOPP Criteria**	**Notes**
Metformin	eGFR <30ml/min	Risk of lactic acidosis
Pioglitazone	In heart failure	Exacerbate symptoms/condition
Oestrogen	History of breast cancer	Increased risk of recurrence
	History of venous thromboembolism (VTE)	
	Without progestogen in patients with intact uterus	Risk of endometrial cancer
HRT	Acute liver disease	
	History of oestrogen-dependent cancer	
	Unexplained vaginal bleeding	
	Thrombophlebitis or thrombophilic disorder	Increased VTE risk

	Arterial thromboembolic disease (e.g. angina or myocardial infarction)	Increased risk of arterial thrombosis
Bisphosphonates	>5 years treatment duration	Consider if suitable for drug holiday and re-assess risk using FRAX and repeat DEXA
	Unexplained thigh, hip or groin pain	
	History of GI disease (dysphagia, oesophagitis, gastritis, peptic ulcer, or upper GI bleeding)	
STOPP		
Genito-urinary system		
Drug	**STOPP Criteria**	**Notes**
Alpha1 receptor blocker (e.g. alfuzosin/tamsulosin)	In symptomatic orthostatic hypotension	Exacerbate hypotension
	In micturition syncope	
Anticholinergics (e.g. oxybutynin)	Dementia or chronic cognitive impairment	Increased confusion/agitation
	Narrow-angle glaucoma	Exacerbate glaucoma
	Chronic prostatism	Risk of urinary retention
Phosphodiesterase type 5 inhibitors (e.g. sildenafil/tadalafil)	Heart failure with hypotension (systolic BP <90 mmHg)	Exacerbate hypotension
	Concurrent nitrate therapy for angina	Risk of cardiovascular collapse
Diuretics (or other drugs that increase urinary output)	Concurrent urinary incontinence	Exacerbate symptoms
STOPP		
Nutrition		
Drug	**STOPP Criteria**	**Notes**
Oral iron	**Elemental** iron doses >200mg daily • Ferrous fumarate >600mg/day • Ferrous sulphate >600mg/day • Ferrous gluconate >1800mg/day	Increased risk of side effects and lack of efficacy at high doses
STOPP		
Musculoskeletal system		
Drug	**STOPP Criteria**	**Notes**
NSAIDs	History of peptic ulcer or GI bleeding (unless co-prescribed GI protection)	Risk of recurrent peptic ulcer Consider alternative analgesia or adding GI protection if NSAID to continue
	In combination with the following and no GI protection co-prescribed: • Oral corticosteroids	Risk of peptic ulcer Consider adding GI protection

	• Antiplatelets • Antidepressants (SSRIs and venlafaxine)	
	Severe or uncontrolled hypertension	Exacerbate hypertension
	Moderate-severe heart failure	Risk exacerbation of heart failure (Do not use diclofenac or COX-2 inhibitors in any stage of heart failure)
	>3 months for MSK pain/mild osteoarthritis where simple analgesia and/or topical NSAID has not been trialled	Simple analgesia (with or without a topical NSAID) may provide the same level of pain relief as oral NSAID
	eGFR <50ml/min	May further impair renal function – use alternative analgesia to NSAID
	On warfarin or DOAC	Increased risk of GI bleed
NSAID Colchicine	>3months for gout where xanthine-oxidase inhibitors are not contraindicated (e.g. allopurinol)	
Diclofenac COX-2 inhibitors Ibuprofen >1200mg daily	In concurrent cardiovascular disease (e.g. angina, PAD, previous MI, stroke/TIA)	Increased risk of thrombotic events
Oral corticosteroids	>3 months as monotherapy for rheumatoid arthritis	Increased risks of systemic side effects
Colchicine	eGFR <10ml/min	Risk of toxicity
Quinine	Stop if no benefit after 4 weeks	
	Trial a drug holiday every 3 months and monitor symptoms	Unless regular painful leg cramps and sleep disruption
STOPP		
Eye		
Drug	**STOPP Criteria**	**Notes**
Non-selective beta blocker (e.g. timolol)	In bradycardia, heart block, uncontrolled heart failure	Risk of bradycardia
	Asthma requiring treatment	Risk of bronchospasm

Anticholinergic drug burden (ACB) - STOPP

The table below contains the most common drugs encountered in primary care with anticholinergic side effects. Such sides effects include confusion and dizziness, which can lead to falls, particularly in those >65 years of age.

Each drug has an associated number of points relative to its risk of causing anticholinergic side effects. If a patient is on more than one drug with anticholinergic side effects, the total number of points is calculated to produce an ACB score.

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An ACB score ≥3 indicates an increased risk of anticholinergic side effects, toxicity, cognitive impairment, and mortality.

STOPP		
Score 1	**Score 2**	**Score 3**
Aripiprazole	**Baclofen**	**Amitriptyline**
Atenolol	**Carbamazepine**	**Chlorphenamine**
Bupropion	**Cetirizine**	**Chlorpromazine**
Captopril	**Cimetidine**	**Clomipramine**
Carbidopa-levodopa	**Loperamide**	**Clozapine**
Citalopram	**Loratadine**	**Cyclizine**
Codeine/co-codamol	**Nefopam**	**Diphenhydramine**
Colchicine	**Oxcarbazepine**	**Dosulepin**
Diazepam	**Prochlorperazine**	**Doxepin**
Digoxin	**Sertraline**	**Hydroxyzine**
Dipyridamole		**Hyoscine hydrobromide**
Entacapone		**Imipramine**
Fluoxetine		**Nortriptyline**
Furosemide		**Olanzapine**
Haloperidol		**Oxybutynin**
Hydralazine		**Paroxetine**
Hydrocortisone		**Procyclidine**
Isosorbide (mono and dinitrate)		**Promethazine**
Levocetirizine		**Solifenacin**
Metoclopramide		**Tolterodine**
Metoprolol		**Trihexyphenidyl**
Mirtazapine		**Trospium**
Morphine		
Nifedipine		
Pramipexole		
Prednisolone		
Quetiapine		
Ranitidine		
Risperidone		
Theophylline		

Tramadol		
Trazadone		
Venlafaxine		
Warfarin		