



STOPP and START criteria

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START and **STOPP** are newer criteria to identify potentially inappropriate medications in elderly, including drug–drug and drug–disease interactions, drugs which increase risk of falls and drugs which duplicate therapy. They were developed by a panel of 18 experts in geriatric pharmacotherapy including physicians, pharmacologists, pharmacists and a psychiatrist. Unlike the Beers criteria, STOPP criteria have been significantly associated with avoidable adverse drug events in older people that cause or contribute to hospitalization.¹

START (screening tool to alert doctors to the right treatment) is an evidence based screening tool that can detect potential omissions in therapy of elderly patients. It includes 22 scenarios divided by physiological system (cardiovascular, respiratory, CNS, GI, locomotor and endocrine) where specific medications are recommended.²

They are:

Cardiovascular (following therapies are recommended assuming there are no contraindications)

- Warfarin for chronic A.fib
- Aspirin for chronic A. fib (warfarin contraindicated)
- Aspirin or Clopidogrel with coronary, cerebral or PVD (patient in sinus rhythm)
- Antihypertensive therapy with systolic BP > 160mmHg
- Statins for those with coronary, cerebral or PVD (where patient is independent of ADL's and life expectancy is > 5yrs)
- ACEi with CHF or after acute MI
- Beta blocker with chronic stable angina

Respiratory

- B2 agonist or anticholinergic for mild to moderate asthma or COPD
- Inhaled steroid for moderate to severe asthma or COPD
- Continuous oxygen where chronic type 1 or 2 respiratory failure has been documented

Central Nervous System

- Levodopa for idiopathic parkinson's with functional impairment and disability
- Antidepressant for clear cut depressive symptoms ≥ 3 months

Gastrointestinal System

- PPI's for chronic, severe GERD, or peptic stricture requiring dilation
- Fibre supplement for chronic diverticular disease with constipation

Locomotor System

- DMARD (disease modifying anti-rheumatic drug) for moderate to severe rheumatoid arthritis > 12 weeks
- Bisphosphonate for those on glucocorticoids > 1month
- Calcium and Vitamin D with known osteoporosis

Endocrine System

- Metformin with type 2 DM +/- metabolic syndrome (unless BUN >12 mmol/L or creatinine > 200 mmol/L)
- ACEi or ARB in diabetes with nephropathy (proteinuria or microalbuminuria) +/- renal impairment (BUN >8 mmol/L or creatinine >130 mmol/L)
- Aspirin therapy in diabetics with well controlled BP
- Statin in diabetics with cholesterol > 5 or additional CV risks

STOPP (Screening Tool of Older Persons' Potentially inappropriate Prescriptions) comprises 65 commonly encountered instances of potentially inappropriate prescribing including drug-drug and drug-disease interactions, duplicate classes and drugs which contribute adversely to falls. They are arranged by physiological system and include explanations as to the why the medication is inappropriate.³

They can be summarised as follows and a detailed list available at :

http://ageing.oxfordjournals.org/content/suppl/2008/10/01/afn197.DC1/afn197_suppl_data.pdf

Cardiovascular System

- Digoxin > 0.125mg with impaired renal function (Clcr < 50ml/min)
- Loop diuretic
 - for edema only
 - first line monotherapy for hypertension
- Beta blocker
 - with COPD
 - with verapamil
- Diltiazem or verapamil with NYHA Class III or IV heart failure
- Calcium channel blockers with constipation
- Aspirin and warfarin without H2 receptor antagonist or PPI
- Dipyridamole as monotherapy for CV secondary prevention
- Aspirin
 - With history of PUD
 - Doses > 150mg/day
 - With no history of coronary, cerebral or peripheral vascular disease
 - To treat dizziness not due to cerebrovascular disease
- Warfarin
 - > 6 mo. for first uncomplicated DVT
 - >12 mo. for first uncomplicated PE
- Aspirin, clopidogrel, dipyridamole or warfarin with concurrent bleeding disorder

Central Nervous System and Psychotropics

- TCA's (Tricyclic Antidepressants)
 - With dementia
 - With glaucoma
 - With cardiac conduction abnormalities
 - With constipation
- With opiate or calcium channel blocker
 - With prostatism or urinary retention
- Long term benzodiazepines (> 1 month)
- Long term neuroleptics
 - With parkinson's (> 1 month)
 - As long term hypnotics
- Phenothiazines with epilepsy
- Anticholinergics to treat extra-pyramidal symptoms of neuroleptics
- SSRI's with hyponatremia
- > 1 week use first generation antihistamines (diphenhydramine, chlorpheniramine, promethazine, cyclizine)

Gastrointestinal System

- Diphenoxylate, loperamide or codeine
 - for diarrhea of unknown cause
 - for infective gastroenteritis
- Prochlorperazine or metoclopramide with parkinson's
- PPI for PUD at full therapeutic dose > 8 weeks
- Anticholinergic, antispasmodics with constipation

Respiratory System

- Theophylline as monotherapy for COPD
- Systemic vs. inhaled corticosteroids for maintenance of moderate to severe COPD
- Ipratropium nebulas with glaucoma

Musculoskeletal System

- NSAID's
 - With history of PUD or GI bleeding (unless with H2 receptor antagonist, PPI or misoprostol)
 - With moderate to severe HTN (>160/100)
 - With heart failure
 - Long term for mild joint pain in OA
 - With warfarin
 - With chronic renal failure
- Long term corticosteroids (>3mo) as monotherapy for RA or OA
- Long term NSAID or colchicine for gout (if no contraindication to allopurinol)

Urogenital System

- Bladder antimuscarinics with dementia
- Antimuscarinics with
 - Glaucoma
 - Constipation
 - Prostatism
- Alpha blockers
 - In males with frequent incontinence
 - With long-term urinary catheter

Endocrine System

- Glibenclamide or chlorpropamide with type 2 DM
- Beta blockers with DM and frequent hypoglycaemia
- Estrogens with history of breast cancer or DVT
- Estrogens without progesterone with intact uterus

Drugs that adversely affect those prone to falls (≥ 1 fall/3mo)

- Benzodiazepines
- Neuroleptics
- 1st generation antihistamines
- Vasodilators causing hypotension with postural hypotension
- Long-term opiates with recurrent falls

Analgesics

- Long-term powerful opiates first line for mild to moderate pain
- Regular opiates > 2wks with constipation and no laxative
- Long-term opiates with dementia unless for palliative care

Duplicate Drug Class

- Any duplicate drug class prescription ex. two opiates, NSAID's, SSRI's, loop diuretics, ACEi's

References:

1. Potentially Inappropriate Medications Defined by STOPP Criteria and the Risk of Adverse Drug Events in Older Hospitalized Patients Hilary Hamilton, MB, MRCPI; Paul Gallagher, PhD, MRCPI; Cristin Ryan, PhD, MPSI; Stephen Byrne, PhD, MPSI; Denis O'Mahony, MD, FRCPI Arch Intern Med. 2011;171(11):1013-1019 Link : <http://ageing.oxfordjournals.org/content/37/6/673.full.pdf+html>
2. START (screening tool to alert doctors to the right treatment)—an evidence-based screening tool to detect prescribing omissions in elderly patients P. J. BARRY, P. GALLAGHER, C. RYAN, D. O'MAHONY Age and Ageing 2007; **36**: 632–638 Link : <http://ageing.oxfordjournals.org/content/36/6/632.full.pdf+html>
3. STOPP (Screening Tool of Older Persons' potentially inappropriate Prescriptions): application to acutely ill elderly patients and comparison with Beers' criteria PAUL GALLAGHER, DENIS O'MAHONY Age and Ageing 2008; **37**: 673–679