STOPP START Toolkit
Supporting
Medication Review

STOPP:
Screening Tool of Older People's Potentially Inappropriate Prescriptions

START:
Screening Tool to Alert Doctors to Right (i.e. appropriate, indicated) Treatments

Contents

STOPP: *S*creening *T*ool of *O*lder *P*eople's *P*otentially Inappropriate Prescriptions [1]

Prescriptions that are potentially inappropriate in persons aged ≥ 65 years of age

START: *S*creening *T*ool to *A*lert Doctors to *R*ight (i.e. appropriate, indicated) *T*reatments [1]

Medication that should be considered for people ≥ 65 years of age where no contraindications exist

Introduction

An evidence based approach to prescribing in the elderly

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".[2]

It is commonly agreed that older people are at greater risk of adverse effects from their medicines due to age related changes in their major organs which in turn alter pharmacokinetics and pharmacodynamics. They also often have multiple co-morbidities leading to drug-drug interactions or cautions and contraindications to preferred treatments.

These patients however are often excluded from drug trials making it difficult for a clinician to weigh up the benefits versus risks, let alone explain them to the patient. Furthermore, although with increasing age a patient can move from benefiting from a treatment to being at significant risk from it, there can be difficulty in stopping medication for the fear of being accused of ageism.

This document is based on the STOPP START Tool, a medication review tool designed to identify medication where the risks outweigh the benefits in the elderly and vice versa. Eighteen experts in geriatric pharmacotherapy initially contributed to suggesting and then rating the criteria. The STOPP criteria were evaluated (along with Beer's criteria[3]) against hospital admissions. One third of the patients with "potentially inappropriate prescriptions" according to STOPP criteria presented with an associated adverse drug event.

All recommendations from the STOPP START Tool are included here, and where space allows local and national guidance.

The recommendations are grouped according to British National Formulary chapters[4] with the STOPP items coloured red and the START items on the coloured green. The rationale for the intervention is given in italics.

The tool was validated in patients aged 65 and over but there is still a place for clinical judgement in deciding whether a person is "elderly" in terms of the potential effects of medication.

Colour Key

Medication to consider stopping in patients over 65 from the STOPP Tool[1]

Medication to consider starting in patients over 65 from the START Tool [1]

National and local guidance e.g. NICE Guidelines[5]

Gastrointestinal System **BNF Section 1**

STOPP

Diphenoxylate (co-phenotrope), loperamide or codeine phosphate

- for treatment of diarrhoea of unknown cause
    - *risk of delayed diagnosis*
    - *may exacerbate constipation with overflow diarrhoea*
    - *may precipitate toxic megacolon in inflammatory bowel disease*
    - *may delay recovery in unrecognised gastroenteritis*
- for treatment of severe infective gastroenteritis i.e. bloody diarrhoea, high fever or severe systemic toxicity
    - *risk of exacerbation or protraction of infection*

Prochlorperazine or metoclopramide

- in patients with Parkinsonism
    - *risk of exacerbating Parkinsonism*

Proton pump inhibitor at treatment dose

- for peptic ulcer disease at full therapeutic dosage for > 8 weeks
    - *risk of unnecessarily prolonged treatment and masking symptoms of gastric cancer; earlier discontinuation or dose reduction for maintenance/ prophylactic treatment of peptic ulcer disease, oesophagitis or GORD*
    - *risk of C. difficile*

Anticholinergic antispasmodic drugs (e.g. hyoscine butylbromide, dicycloverine)

- for patients with chronic constipation
    - *risk of exacerbation of constipation*

Stimulant laxatives (e.g. senna, bisacodyl)

- for patients with intestinal obstruction
    - *risk of bowel perforation*

Gastrointestinal System BNF Section 1

START

Proton Pump Inhibitor

- for severe gastro-oesophageal acid reflux disease or peptic stricture requiring dilatation; consider referring to GP for follow-up in community
- for patients over 80 years old on anti-platelets and SSRIs

Fibre supplement

- for chronic, symptomatic diverticular disease with constipation

Gastrointestinal System BNF Section 1

National and local guidance e.g. NICE Guidelines

MUST Tool

Review need for enteral nutrition. Assess patient according to MUST Tool:
www.bapen.org.uk/pdfs/must/must_full.pdf

This document is located in all patient notes at ELHT.

Re-Feeding Syndrome

Local guidance available via the intranet homepage:

Home page: Policies and Procedures>Search: Re-feeding

NICE CG17 Dyspepsia

http://www.nice.org.uk/nicemedia/live/10950/29460/29460.pdf

Cardiovascular System BNF Section 2

STOPP

Digoxin

- at a long-term dose >125microgram/day with impaired renal function (eGFR <50mL/minute)
    - *increased risk of toxicity (e.g. nausea, diarrhoea, arrhythmias)*
        - *levels can be taken (must be > 6 hours post dose) if there is a risk of toxicity and/or toxicity suspected*

Loop diuretic (e.g. furosemide, bumetanide)

- for dependent ankle oedema only i.e. no clinical signs of heart failure
    - *no evidence of efficacy*
        - *compression hosiery usually more appropriate*
- as first-line monotherapy for hypertension
    - *safer, more effective alternatives available*

Thiazide diuretic (e.g bendroflumethiazide)

- with a history of gout
    - *risk of exacerbating gout*

Beta-blocker

- in combination with verapamil
    - *risk of symptomatic heart block*

Non-cardioselective beta-blocker (e.g. propranolol, sotalol)

- in patients with COPD
    - *risk of bronchospasm*

Calcium channel blockers

- with chronic constipation
    - *may exacerbate constipation*
- Use of diltiazem or verapamil with NYHA Class III or IV heart failure
    - *may worsen heart failure*
- if ankle oedema present
    - *may be result of calcium channel blocker*

Vasodilator drugs (e.g. hydralazine, minoxidil)

- with persistent postural hypotension i.e. recurrent > 20 mmHg drop in systolic blood pressure
    - *risk of syncope and falls*
        - *stop if patient has fallen in past 3 months*

Aspirin

- at dose >150 mg/day; restart at 75mg if still indicated
    - *increased bleeding risk, no evidence for increased efficacy*
- with concurrent bleeding disorder
    - *high risk of bleeding*

Warfarin

- after 6 months of treatment for first, uncomplicated deep venous thrombosis
    - *no proven added benefit beyond 6 months*
- after 12 months of treatment for first uncomplicated pulmonary embolus
    - *no proven benefit beyond 12 months*
- with concurrent bleeding disorder
    - *high risk of bleeding*
- hepatic impairment with impaired clotting ability and raised INR
    - *increased risk of bleeding as a result of impaired ability to produce clotting factors*

Clopidogrel

- with concurrent bleeding disorder
    - *high risk of bleeding*

Dipyridamole

- as monotherapy for cardiovascular secondary prevention, unless intolerant to aspirin and clopidogrel (secondary prevention TIA)
    - *no evidence for efficacy*
- with concurrent bleeding disorder
    - *high risk of bleeding*
- immediate release tablets
    - *no evidence for efficacy and non-formulary*

Statins

- Atorvastatin 80mg for longer than 6 months post-MI
    - *Reduce to maintenance simvastatin after this period except in exceptional circumstances highlighted in the Trust formulary* http://www.elmmb.nhs.uk/formularies/joint-medicines-formulary/2/2-12/
- In patients displaying symptoms of muscle weakness and pain
    - *Risk of myopathy and rhabdomyolysis*
        - *Check creatinine kinase if patient presents with muscular symptoms*

START

Cardiovascular System BNF Section 2

Warfarin

- in the presence of chronic atrial fibrillation
- following diagnosis of deep vein thrombosis or pulmonary embolism if benefit outweighs risk of treatment

Aspirin

- in the presence of chronic atrial fibrillation, where warfarin is contraindicated, but not aspirin

Aspirin or clopidogrel

- with a documented history of atherosclerotic coronary, cerebral or peripheral vascular disease in patients with sinus rhythm
- following an acute myocardial infarction

Antihypertensive

- therapy where systolic blood pressure consistently >160 mmHg

Statin

- therapy with a documented history of coronary, cerebral or peripheral vascular disease

Angiotensin Converting Enzyme (ACE) inhibitor

- with chronic heart failure
- following acute myocardial infarction

Beta-blocker

- with chronic stable angina
- following an episode of ACS if no contra-indications

Proton pump inhibitor

- with aspirin and warfarin in combination

National and local guidance e.g. NICE Guidelines

ELHT Falls Prevention

Refer to local guidance available in the intranet and encourage the use of medication review sheets on drug charts at ELHT. Each ward has a 'falls champion' to follow this input up.
Search: 'Slips, trips and falls prevention policy' on Trust intranet

Statin Therapy

The current NHS East Lancashire Medicines Management Board Lipid Modification Prescribing Guidelines are available from the Medicines Management intranet pages[6]. These guidelines do not specify degree of independence or life expectancy - the decision to start a statin is between the clinician and patient.

Simvastatin 40 mg is the treatment of choice in most scenarios. Dose and choice of statin should no longer be based on target cholesterol, except in diabetes.

Maximum dose of simvastatin is 20mg at night when given with concomitant amlodipine, verapamil, diltiazem, amiodarone
http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON180637

NICE CG127 Hypertension

http://www.nice.org.uk/nicemedia/live/13561/56008/56008.pdf

NICE CG36 Atrial Fibrillation

http://www.nice.org.uk/CG36

Respiratory System BNF Section 3

STOPP

Theophylline

- as monotherapy for COPD
    - *safer, more effective alternative; risk of adverse effects due to narrow therapeutic index*
- oral theophylline if patient on aminophylline infusion
    - *risk of toxicity if oral continued during i/v therapy; risk of adverse effects due to narrow therapeutic index*

Systemic corticosteroids

- instead of inhaled corticosteroids for maintenance therapy in moderate-severe COPD
    - *unnecessary exposure to long-term side-effects of systemic steroids*

Nebulised ipratropium

- Prescribing as required *(prn)* in addition to regular
    - *Can lead to exceeding licensed dosage and therefore exacerbate side effects*
- with glaucoma
    - *may exacerbate glaucoma*
        - *Adapted masks can be used to reduce direct optical exposure to ipratropium*

First generation antihistamines

- Stop if patient has fallen in past 3 months
    - *sedative, may impair sensorium*

Carbocisteine

- if no benefit after 4 weeks
    - *unnecessary if no benefit shown*

Antibiotics

- Review i/v antibiotics after 48 hours and switch to oral if possible
    - *Cultures and sensitivities may be available by this point; if i/v antibiotics continue beyond 48 hours review daily*

START

Respiratory System BNF Section 3

Beta-$_2$ agonist or anticholinergic (antimuscarinic)

- agent for mild to moderate asthma or COPD
    - *Review patients with mild or moderate COPD at least once a year, and severe or very severe COPD (FEV_1 <50% predicted) at least twice a year. Follow NICE guidance regarding treatment selection*

Calcium supplement and bisphosphonate

- in patients at high risk of osteoporosis due to long term treatment with steroids

Spacer for MDI devices

- for patients struggling with inhaler technique and/or with dexterity problems
- To reduce incidence of oral thrush resulting from inhaled corticosteroids

National and local guidance e.g. NICE Guidelines

NICE CG 101 COPD[5]

Oxygen

Assess the need for **oxygen** therapy in people with any of the following:

-very severe airflow obstruction (FEV_1 <30% predicted)

-cyanosis

-polycythaemia

-peripheral oedema

-raised jugular venous pressure

-oxygen saturations less than or equal to 92% breathing air

Give people at risk of exacerbations a course of **antibiotic** and **oral corticosteroid** tablets to keep at home.

Theophylline

Only offer theophylline after trials of short- and long- acting bronchodilators or to people who cannot use inhaled therapy.

Local guidance available on intranet

Home page: Policies and procedures>Guidelines>Medicines and prescribing>Aminophylline loading and maintenance dosing

Oral Corticosteroids

Maintenance use of oral corticosteroid therapy in COPD is not normally recommended.

Some people with advanced COPD may need maintenance oral corticosteroids if treatment cannot be stopped after an exacerbation. Keep the dose as low as possible, monitor for osteoporosis and offer prophylaxis.

Central Nervous System & Psychotropic Drugs BNF Section 4

STOPP

Tricyclic antidepressants (TCAs)

NB. In most cases these drugs should be withdrawn gradually**

- with dementia
    - *risk of worsening cognitive impairment*
- with glaucoma
    - *likely to exacerbate glaucoma*
- with cardiac conductive abnormalities
    - *pro-arrhythmic effects*
- with constipation
    - *likely to worsen constipation*
- with an opiate or calcium channel blocker
    - *risk of severe constipation*
- with prostatism or prior history of urinary retention
    - *risk of urinary retention*

Benzodiazepines

NB. In cases where a patient has been on benzodiazepine for a prolonged period they should be withdrawn very slowly**

- if long-term (i.e. > 1 month) and long-acting (e.g. chlordiazepoxide, oxazepam, nitrazepam) and benzodiazepines with long-acting metabolites (e.g. diazepam)
    - *risk of prolonged sedation, confusion, impaired balance, falls*
- if fallen in past 3 months

Antipsychotics (Neuroleptics)

- long-term (i.e. > 1 month) as hypnotics
    - *risk of confusion, hypotension, extra-pyramidal side effects, falls*
- long-term (> 1 month) in those with parkinsonism
    - *likely to worsen extra-pyramidal symptoms*

- if fallen in past 3 months
    - *may cause gait dyspraxia, Parkinsonism*
- When used inappropriately in dementia patients
    - *Small increase in risk of CVA*

Phenothiazines (e.g. prochlorperazine, chlorpromazine)

- in patients with epilepsy
    - *may lower seizure threshold*

Anticholinergics

- to treat extra-pyramidal side-effects of neuroleptic medications
    - *risk of anticholinergic toxicity, including confusion and urinary retention*

Selective serotonin re-uptake inhibitors (SSRI's)

- with a history of clinically significant hyponatraemia *(<130 mmol/L within the previous 2 months)*
    - *SSRIs can cause/worsen hyponatraemia*

First generation antihistamines (e.g.diphenhydramine, chlorphenamine, cyclizine)

- if prolonged use (> 1 week)
    - risk of sedation and anti-cholinergic side effects
- cyclizine cautioned in heart failure

Opioids

- Use of long-term strong opiates as first line therapy for mild-moderate pain

  (WHO analgesic ladder not observed)
- Regular opiates for more than 2 weeks in those with chronic constipation without concurrent use of laxatives
    - *risk of severe constipation*
- long-term in those with dementia unless for palliative care or management of chronic pain syndrome
    - *exacerbation of cognitive impairment*

START

Central Nervous System and Psychotropic Drugs BNF

Section 4

Levodopa

- in idiopathic Parkinson's disease with definite functional impairment and resultant disability
    - *specialist initiation only, refer where necessary*

Antidepressant

- drug in the presence of moderate-severe depressive symptoms lasting at least three months

Laxatives

- In patients taking opioids
    - Prevent constipation

National and local guidance e.g. NICE Guidelines

NICE CG90 Depression in Adults[5]

The first step in mild depression is not routinely to prescribe e.g. offer CBT

**Welsh MeReC

Gives guidance on stopping benzodiazepines, antidepressants and antipsychotics available at www.wemerec.org.

End of life care

See the East Lancashire guidelines for the management of symptoms in the last days of life on the intranet for more details

Home page: Policies and procedure> Guidelines > Medicines & prescribing

WHO analgesic ladder

Mild Opioid: codeine, dihydrocodeine, tramadol, buprenorphine

Strong Opioid: morphine, diamorphine, oxycodone, fentanyl, pethidine

NICE TG42 Dementia[5]

Covers the use of acetylcholinesterase inhibitors and memantine in dementia

TA217 Alzheimer's disease[5]

In elderly patients with dementia, antipsychotic drugs are associated with a small increased risk of mortality and an increased risk of stroke or transient ischaemic attack. Furthermore, elderly patients are particularly susceptible to postural hypotension and to hyper- and hypothermia in hot or cold weather.[6]

Refer to NHS action

http://www.institute.nhs.uk/qipp/calls_to_action/Dementia_and_antipsychotic_drugs.html

Endocrine System BNF Section 6

STOPP

Glibenclamide or chlorpropamide

- with Type 2 diabetes mellitus
    - *risk of prolonged hypoglycaemia*

Beta-blockers

- in those with diabetes mellitus and frequent hypoglycaemic episodes i.e. > 1 episode per month
    - *risk of masking hypoglycaemic symptoms*

Oestrogens

- with a history of breast cancer or venous thromboembolism
    - *increased risk of recurrence*
- without progestogen in patients with intact uterus
    - *risk of endometrial cancer*

Pioglitazone

- in patients with heart failure or at risk of heart failure
    - *increased incidence of heart failure with pioglitazone*

Metformin

- in patients with eGFR<30
    - *risk of acidosis; use metformin with caution if eGFR <45*

START

Endocrine System BNF Section 6

Metformin

- with type 2 diabetes +/- metabolic syndrome (in the absence of renal impairment - eGFR <50mL/ minute)

ACE inhibitor or Angiotensin Receptor Blocker (ARBs)

- in diabetes with nephropathy i.e. overt urinalysis proteinuria or microalbuminuria (>30mg/24 hours) +/- serum biochemical renal impairment - eGFR <50mL/minute

Antiplatelet therapy

- in diabetes mellitus if one or more co-existing major cardiovascular risk factors present (hypertension, hypercholesterolaemia, smoking history)

Statin therapy

- in diabetes mellitus if one or more co-existing major cardiovascular risk factor present

National and local guidance e.g. NICE Guidelines

NICE CG87 Type 2 Diabetes[5]

Covers:

- offering lifestyle advice as well as medication to achieve individually set HbA1c levels (and not to pursue highly intensive management to levels of less than 6.5%)
- self-monitoring of blood glucose only when it can be used as part of the overall management
- which medication to use

http://www.nice.org.uk/Search.do?searchText=cg87&newsearch=true#/search/?reload

NHS East Lancashire Medicines Management Board Lipid Modification Prescribing Guidelines

Available from the Medicines Management intranet pages[6]. See cardiovascular section of this guidance.

Urogenital System BNF Section 7

STOPP

Bladder antimuscarinic drugs

- with dementia
    - *risk of increased confusion, agitation*
- with chronic glaucoma
    - *risk of acute exacerbation of glaucoma*
- with chronic constipation
    - *risk of exacerbation of constipation*
- with chronic prostatism
    - *risk of urinary retention*

Alpha-blockers

- in males with frequent incontinence i.e. one or more episodes of incontinence daily
    - *risk of urinary frequency and worsening of incontinence*
- with long-term urinary catheter *in situ* i.e. more than 2 months
    - *drug not indicated*

National and local guidance e.g. NICE Guidelines

NICE CG40 Urinary Incontinence in Women[5]

- There is evidence to support the use of pelvic floor muscle training and bladder training ahead of medication (see table below).

	Stress UI	Mixed UI	Urge UI or OAB	First pregnancy
Pelvic floor muscle training	*	*		*
Bladder training		*	*	
Antimuscarinic treatment		*	*	

- Immediate release oxybutynin should be offered to women with overactive bladder syndrome (OAB) or mixed urinary incontinence (UI) if bladder training has been effective. There is no evidence of clinically significant differences between the antimuscarinic drugs.

Musculoskeletal System BNF Chapter 10

STOPP

Non-steroidal anti-inflammatory drug (NSAID)

- with history of peptic ulcer disease or gastrointestinal bleeding, unless with concurrent H_2 receptor antagonist, PPI
    - *risk of peptic ulcer relapse*
- with moderate-severe hypertension (moderate: 160/100mmHg – 179/109mmHg; severe: ≥180/110mmHg)
    - *risk of exacerbation of hypertension*
- with heart failure
    - *risk of exacerbation of heart failure*
- with warfarin
    - *risk of gastrointestinal bleeding*
- with chronic renal failure - eGFR 20-50mL/minute
    - *risk of deterioration in renal function*
- Long-term use of NSAID (>3 months) for relief of mild joint pain in osteoarthritis
    - *simple analgesics preferable and usually as effective for pain relief*
- Long-term NSAID or colchicine for chronic treatment of gout where there is no contraindication to allopurinol
    - *allopurinol first choice prophylactic drug in gout*
- Long-term corticosteroids (>3 months) as monotherapy for rheumatoid arthritis or osteoarthritis
    - *risk of major systemic corticosteroid side-effects*
- *Cyclo-oxygenase-2 selective inhibitors, diclofenac and ibuprofen in cardiovascular disease*
    - *Increased risk of thrombotic events*

Musculoskeletal System BNF Chapter 10

START

Disease-modifying anti-rheumatic drug (DMARD)

- with active moderate-severe rheumatoid disease lasting > 12 weeks

Bisphosphonates

- in patients taking maintenance oral corticosteroid therapy. Ensure there are no absorption interactions with e.g. Calcium. Counsel patient on the correct way to take a bisphosphonate

Calcium and Vitamin D

- supplement in patients with known osteoporosis (radiological evidence or previous fragility fracture or acquired dorsal kyphosis). Consider making dose times at lunch & teatime to avoid absorption interactions e.g. with levothyroxine, bisphosphonate
    - *400 units for prevention of deficiency and 800 units for treatment*

National and local guidance e.g. NICE Guidelines

NICE TA160 and TA161 Primary and Secondary Prevention of Osteoporosis[5]

In primary prevention, women aged 75 and over do not require a DEXA scan before starting alendronic acid if they have two or more clinical risk factors or indicators of low BMD; for secondary prevention this is reduced to one or more.

For treatments other than alendronic acid a DEXA scan is required because the treatments are only indicated at certain T scores; unless, in secondary prevention, the clinician considers it inappropriate or unfeasible.

Wound Management

- The current NHS ELMMB Joint Wound Care Formulary is available from the Medicines Management intranet pages[6].

- If after using a silver product for 1-2 weeks, no improvement in the wound is seen, then a full reassessment of the wound and patient should be undertaken.

Vitamin D deficiency

Local guidance available on East Lancashire Medicines Management Board website http://www.elmmb.nhs.uk

References

1. Gallagher P, Ryan C, Byrne S, Kennedy J, O'Mahony D. STOPP (Screening Tool of Older Persons' Prescriptions) and START (Screening Tool to Alert Doctors to Right Treatment): Consensus Validation. *Int J Clin Pharmacol Ther* 2008; 46(2): 72 – 83. PMID 18218287

2. Task Force on Medicines Partnership. Room for Review. A guide to medication review: the agenda for patients, practitioners and managers. *Medicines Partnership*. London. 2002

3. Beers MH. Explicit Criteria for Determining Potentially Inappropriate Medication Use by Elderly. An Update. *Arch Intern Med*. 1997;157:1531-1536

4. British National Formulary available from: www.bnf.org

5. NICE Guidance available from: www.nice.org.uk/ guidance/index.jsp

6. East Lancashire Medicines Management Board Formulary available from: http://www.elmmb.nhs.uk/formularies

Special acknowledgment to NHS Cumbria on whose STOPP START toolkit this document was based

East Lancashire Hospitals Pharmacy team

December 2012