STOPP/START

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The older Person

- Greying population
- Exponential increase in the prevalence of diseases with increasing age
- Unique medication needs of older people
- Increased prevalence of adverse drug reactions leading to an increase in drug related morbidity and mortality
Inappropriate Prescribing

Inappropriate prescribing in the elderly:

Potential Risk (ADR) > Potential Benefit

✓ Over-prescribing
  ✓ Dose and frequency that exceeds what is clinically indicated
✓ Polypharmacy:
  • Drug-drug interactions
  • Drug-disease interactions
✓ Under-prescribing
Screening tools

• Explicit
  • Criteria
  • Validated by consensus panels, experts
  • Focus on drug – disease / drug – drug interactions

• Implicit
  • Subjective in nature
  • Judgement based
  • Focused more on the patient and their wishes / ability?

Designed for use in any clinical setting
“Should be routine”
“Should improve outcomes”

Beers et al., Arch Int Med
1991; 151:1825-32
1997; 157: 1531
2003; 163: 2716-24
Effect of a Collaborative Approach on the Quality of Prescribing for Geriatric Inpatients: A Randomized, Controlled Trial

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OBJECTIVES: To determine the effect of pharmaceutical care provided in addition to acute Geriatric Evaluation and Management (GEM) care on the appropriateness of prescribing.

DESIGN: Randomized, controlled trial, with the patient as unit of randomization.

SETTING: Acute GEM unit.

PARTICIPANTS: Two hundred three patients aged 70 and older.

INTERVENTION: Pharmaceutical care provided from admission to discharge by a specialist clinical pharmacist who had direct contacts with the GEM team and patients.

MEASUREMENTS: Appropriateness of prescribing on admission, at discharge, and 3 months after discharge, using the Medication Appropriateness Index (MAI), Beers criteria, and Assessing Care of Vulnerable Elders (ACOVE) underuse criteria and mortality, readmission, and emergency visits up to 12 months after discharge.

RESULTS: Intervention patients were significantly more likely than control patients to have an improvement in the MAI and in the ACOVE underuse criteria from admission to discharge (odds ratio (OR) = 9.1, 95% confidence interval (CI) = 4.2–21.6 and OR = 6.1, 95% CI = 2.2–17.0, respectively). The control and intervention groups had comparable improvements in the Beers criteria.

CONCLUSION: Pharmaceutical care provided in the context of acute GEM care improved the appropriate use of medicines during the hospital stay and after discharge. This is an important finding, because only limited data exist on the effect of various strategies to improve medication use in elderly inpatients. The present approach has the potential to minimize risk and improve patient outcomes. J Am Geriatr Soc 55:658–665, 2007.

Key words: drug therapy; appropriateness; randomized controlled trial; pharmaceutical care; acute geriatric care

Inappropriate use of medicines in elderly patients is of major concern to clinicians and public health authorities. Drug-related problems are implicated in 10% to 30% of hospital admissions in older people. Moreover, adverse drug reactions occur during hospital stays in up to half of these patients. A recent study found that 42% of elderly inpatients were prescribed at least one drug without valid indication and that dosage or duration was inadequate in about half of these patients. Conversely, medicines for conditions such as heart failure or osteoporosis remain underused in 20% to 70% of patients. Medication errors are also frequent during transition between acute and post-
Origins of STOPP/START

2003: First draft of STOPP criteria
2004: First draft of START criteria

First published abstract on STOPP

2005: First published abstract on START

START (Screening Tool to Action Right Treatment) – a new explicit evidence based screening tool to detect prescribing omissions in elderly patients.

2006: Refinement of STOPP/START criteria
2007: First full paper on START criteria

START (Screening Tool to Alert doctors to the Right Treatment) – an evidence based screening tool to detect prescribing omissions in elderly patients.
Refinement of STOPP/START criteria (evidence base)
Delphi validation of STOPP/START criteria and preparation of manuscript for publication
STOPP (Screening Tool of Older Person’s Prescriptions) and START (Screening Tool to Alert doctors to Right Treatment). Consensus validation

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Gallagher et al., Intern J Clin Pharm Ther 2008.

- Delphi Validation method - 18 experts
- One postal round for START - 22 criteria
- Two postal rounds for STOPP - 65/68 criteria
A. Cardiovascular System

1. Digoxin at a long-term dose > 125 micrograms/day with impaired renal function*(increased risk of toxicity).

2. Loop diuretic for dependent ankle oedema only i.e. no clinical signs of heart failure (no evidence of efficacy, compression hosiery usually more appropriate).

3. Loop diuretic as first-line monotherapy for hypertension (safer, more effective alternatives available).

4. Thiazide diuretic with a history of gout *(may exacerbate gout)*.

5. Beta-blocker with Chronic Obstructive Pulmonary Disease (COPD) *(risk of increased bronchospasm)*.

6. Beta-blocker in combination with verapamil *(risk of symptomatic heart block)*.

7. Use of diuretics or verapamil with NYHA Class II or III heart failure *(may worsen heart failure)*.

8. Calcium-channel blockers with chronic constipation *(may exacerbate constipation)*.

9. Use of aspirin and warfarin in combination without histamine H1 receptor antagonist (except cimetidine because of interaction with warfarin) or Proton Pump Inhibitor (PPI) *(high risk of gastrointestinal bleeding)*.

10. Dipyridamole as monotherapy for cardiovascular secondary prevention *(no evidence for efficacy)*.

11. Aspirin with a past history of peptic ulcer disease without histamine H2 receptor antagonist or PPI *(risk of bleeding)*.

12. Aspirin at dose > 150 mg day *(increased bleeding risk, no evidence for increased efficacy)*.

13. Aspirin with no history of coronary, cerebral or peripheral vascular symptoms or occlusive event *(not indicated)*.

14. Aspirin to treat dizziness not clearly attributable to cerebrovascular disease *(not indicated)*.

15. Warfarin for first, uncomplicated deep venous thrombosis for longer than 6 months duration *(no proven added benefit)*.

16. Warfarin for first uncomplicated pulmonary embolus for longer than 12 months duration *(no proven benefit)*.

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Why - Version 2?

• Expanding / changing evidence-based therapeutics

• Some criteria from Version 1 were out of date:
  • Aspirin for primary prevention of CVD in diabetes
  • Aspirin with no history of coronary, cerebral or peripheral arterial occlusive symptoms
  • Calcium channel blockers in chronic constipation

• Desire to have a broader consensus i.e. European-wide

• Need to streamline some criteria
  • Those dealing with Tricyclic Antidepressants
STOPP/START criteria for potentially inappropriate prescribing in older people: version 2

Denis O’Mahony¹², David O’Sullivan¹, Stephen Byrne¹, Marie Noelle O’Connor², Cristin Ryan¹, Paul Gallagher³
87 STOPP rules (34% increase, i.e. 22 extra rules)
34 START rules (54% increase, i.e. 12 extra rules)
39% increase in total number of rules

New STOPP categories:
- Drug indication
- Antiplatelet/anticoagulant drugs
- Drugs affecting the kidney

New START categories:
- Urogenital system drugs
- Analgesics
- Vaccines
Implementing STOPP/START

• 100+ studies

• Reduction in prescribing of PIMs in 70% of patients

• Reduction in PPOs in 31.6% of patients

• 33.3% reduction in ADRs
Implementing STOPP/START

• In majority of studies, pharmacist applies STOPP/START via chart review
  • Higher uptake of recommendations from medics though

• Method of delivery of recommendations is crucial
  • Face to face Vs Written
  • To junior doctor Vs more senior staff

• Extremely positive reaction from doctors, esp junior ranks
  • First create the demand, then supply!

• Familiarise yourself with the guidelines

• Will soon spot the common culprits easily
  • PPI
  • NSAID
  • Benzos
Implementing STOPP/START

- Apply Stopp/Start to case studies as a group
- Compare results after
- Compare to gold standard
- Learn to view patients’ prescriptions in terms of physiological systems
Implementing STOPP/START

• Still paper based
  • Classification by physiological systems is a big help. Eliminate sections at first glance.

• Electronic implementation is the holy grail

• Can only realistically be used for research or small scale initiatives until then.
Eye on the patient benefit prize

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SENATOR

ADR, Cost

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Thank You!

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