

STOPP-Frail

Screening Tool of Older Persons Prescriptions in Frail adults with limited life expectancy

Purpose : List of potentially inappropriate prescribing indicators designed to assist physicians with stopping such medications in End of Life patients who meet ALL of the following criteria:

1. End-stage irreversible pathology
2. Poor one year survival prognosis
3. Severe functional impairment or severe cognitive impairment or both
4. Symptom control is the priority rather than prevention of disease progression

Admin time : Highly operator dependent - 5 mins for an expert, up to 20-30 mins

User Friendly : Moderate

Administered by : GP, Physician, Community Pharmacist

Content : STOPP-Frail comprises 27 criteria relating to medications that are potentially inappropriate in frail older patients with limited life expectancy. STOPP-Frail assists physicians in deprescribing medications in these patients.

Author : Hanora Lavan, A., Gallagher, P., Parsons, C., & O'Mahony, D. (2017)

Copyright : Public Domain

STOPP-Frail criteria, now published and in the public domain, may be used by any appropriately trained person as an assistive tool in the process of medication review of this particular cohort of older people. STOPP-Frail criteria are not constrained by copyright and in themselves are not patentable as intellectual property. The term 'STOPP-Frail' is however protected by copyright and cannot be used for commercial purposes except by University College Cork, Ireland or with the expressed written consent of University College Cork, Ireland



<https://www.cgakit.com/stopp-frail>

STOPP-Frail

Screening Tool of Older Persons Prescriptions in Frail adults with limited life expectancy

STOPP-Frail is a list of potentially inappropriate prescribing indicators designed to assist physicians with stopping such medications in older patients (≥65 years) who meet ALL of the criteria listed below:

- (1) End-stage irreversible pathology
- (2) Poor one year survival prognosis
- (3) Severe functional impairment or severe cognitive impairment or both
- (4) Symptom control is the priority rather than prevention of disease progression

The decision to prescribe/not prescribe medications to the patient, should also be influenced by the following issues:

- (1) Risk of the medication outweighing the benefit
- (2) Administration of the medication is challenging
- (3) Monitoring of the medication effect is challenging
- (4) Drug adherence/compliance is difficult

Disclaimer (STOPP-Frail)

Whilst every effort has been made to ensure that the potentially inappropriate prescribing criteria listed in STOPP-Frail are accurate and evidence-based, it is emphasized that the final decision to avoid or initiate any drug referred to in these criteria rests entirely with the prescriber. It is also to be noted that the evidence base underlying certain criteria in STOPP-Frail may change after the time of publication of these criteria. Therefore, it is advisable that prescribing decisions should take account of current published evidence in support of or against the use of drugs or drug classes described in STOPP-Frail.

Author : Hanora Lavan, A., Gallagher, P., Parsons, C., & O'Mahony, D. (2017)

Copyright : Public Domain

STOPP-Frail criteria, now published and in the public domain, may be used by any appropriately trained person as an assistive tool in the process of medication review of this particular cohort of older people. STOPP-Frail criteria are not constrained by copyright and in themselves are not patentable as intellectual property. The term 'STOPP-Frail' is however protected by copyright and cannot be used for commercial purposes except by University College Cork, Ireland or with the expressed written consent of University College Cork, Ireland

Section A: General

A1: Any drug that the patient persistently fails to take or tolerate despite adequate education and consideration of all appropriate formulations.

A2. Any drug without clear clinical indication.

Section B: Cardiovascular system

B1. Lipid lowering therapies

(statins, ezetimibe, bile acid sequestrants, fibrates, nicotinic acid and acipimox)
These medications need to be prescribed for a long duration to be of benefit.
For short-term use, the risk of ADEs outweighs the potential benefits [43–45]

B2. Alpha-blockers for hypertension

Stringent blood pressure control is not required in very frail older people. Alpha blockers in particular can cause marked vasodilatation, which can result in marked postural hypotension, falls and injuries [46]

Section C: Coagulation system

C1: Anti-platelets

Avoid anti-platelet agents for primary (as distinct from secondary) cardiovascular prevention (no evidence of benefit) [47]

Section D: Central Nervous System

D1. Neuroleptic antipsychotics

Aim to reduce dose and gradually discontinue these drugs in patients taking them for longer than 12 weeks if there are no current clinical features of behavioural and psychiatric symptoms of dementia (BPSD) [48–52]

D2: Memantine

Discontinue and monitor in patients with moderate to severe dementia, unless memantine has clearly improved BPSD (specifically in frail patients who meet the criteria above) [53–56]

Section E: Gastrointestinal system

E1. Proton Pump Inhibitors

Proton Pump Inhibitors at full therapeutic dose $\geq 8/52$, unless persistent dyspeptic symptoms at lower maintenance dose [57]

E2: H2 receptor antagonist

H2 receptor antagonist at full therapeutic dose for $\geq 8/52$, unless persistent dyspeptic symptoms at lower maintenance dose [57]

E3. Gastrointestinal antispasmodics

Regular daily prescription of gastrointestinal antispasmodics agents unless the patient has frequent relapse of colic symptoms because of high risk of anti-cholinergic side effects [57]

Section F: Respiratory system

F1. Theophylline.

This drug has a narrow therapeutic index, requires monitoring of serum levels and interacts with other commonly prescribed drugs putting patients at an increased risk of ADEs [58–60]

F2. Leukotriene antagonists

(Montelukast, Zafirlukast)

These drugs have no proven role in COPD, they are indicated only in asthma [61]

Section G: Musculoskeletal system

G1: Calcium supplementation

Unlikely to be of any benefit in the short term

G2: Anti-resorptive/bone anabolic drugs FOR OSTEOPOROSIS

(bisphosphonates, strontium, teriparatide, denosumab)

Unlikely to be of any benefit in the short term

G3. SORMs for osteoporosis

Benefits unlikely to be achieved within 1 year, increased short–intermediate term risk of associated ADEs particularly venous thromboembolism and stroke [57]

G4. Long-term oral NSAIDs

Increased risk of side effects (peptic ulcer disease, bleeding, worsening heart failure, etc.) when taken regularly for ≥ 2 months [62–64]

G5. Long-term oral steroids

Increased risk of side effects (peptic ulcer disease, etc.) when taken regularly for ≥ 2 months. Consider careful dose reduction and gradual discontinuation [65]

Section H: Urogenital system

H1. 5-Alpha reductase inhibitors

No benefit with long-term urinary bladder catheterisation [66, 67]

H2. Alpha blockers

No benefit with long-term urinary bladder catheterisation [66, 67]

H3. Muscarinic antagonists

No benefit with long-term urinary bladder catheterisation, unless clear history of painful detrusor hyperactivity [66, 67]

Section I : Endocrine system

I 1. Diabetic oral agents

Aim for monotherapy. Target of HbA1c < 8%/64 mmol/mol. Stringent glycaemic control is unnecessary [68]

I 2. ACE-inhibitors for diabetes

Stop where prescribed only for prevention and treatment of diabetic nephropathy. There is no clear benefit in older people with advanced frailty with poor survival prognosis [69]

I 3. Angiotensin receptor blockers

Stop where prescribed only for prevention and treatment of diabetic nephropathy. There is no clear benefit in older people with advanced frailty with poor survival prognosis [69]

I 4. Systemic oestrogens for menopausal symptoms

Increases risk of stroke and VTE disease. Discontinue and only consider recommencing if recurrence of symptoms [57]

Section J: Miscellaneous

J1. Multi-vitamin combination supplements

Discontinue when prescribed for prophylaxis rather than treatment

J2. Nutritional supplements (other than vitamins)

Discontinue when prescribed for prophylaxis rather than treatment [70]

J3: Prophylactic antibiotics

No firm evidence for prophylactic antibiotics to prevent recurrent cellulitis or UTIs [71–73]

References

Note: There is a long list of references to support this research. Those that are not listed here are listed below as supplementary references :

1. World Health Organisation. Global Health and Ageing. 2011.
2. Jiaquan Xu MD, Sherry L, Murphy BS et al. Deaths: Final Data for 2013. National vital statistics reports: from the Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. 2016; 64.
4. Kojima G. Prevalence of frailty in nursing homes: A systematic review and meta-analysis. *J Am Med Dir Assoc* 2015; 16:940–
5. Moore KL, Boscardin WJ, Steinman MA, Schwartz JB. Patterns of chronic co-morbid medical conditions in older residents of U.S. nursing homes: differences between the sexes and across the agespan. *J Nutr Health Aging* 2014; 18: 429–36.
6. The Centre of Ageing Research and Development in Ireland [CARDI]. Illustrating Ageing in Ireland North and South:Key Facts and Figures. 2010.
7. Ribbe MW, Ljunggren G, Steel K et al. Nursing homes in 10 nations: a comparison between countries and settings. *Age Ageing* 1997; 26(Suppl 2):3–12.
8. Kelly A, Conell-Price J, Covinsky K et al. Length of stay for older adults residing in nursing homes at the end of life. *J Am Geriatr Soc* 2010; 58: 1701–6.
9. Onder G, Liperoti R, Fialova D et al. Polypharmacy in nursing home in Europe: results from the SHELTER study. *J Gerontol A Biol Sci Med Sci* 2012; 67: 698–704.
11. Tjia J, Briesacher BA, Peterson D, Liu Q, Andrade SE, Mitchell SL. Use of medications of questionable benefit in advanced dementia. *JAMA Intern Med* 2014; 174: 1763–71.
13. Palagyi A, Keay L, Harper J, Potter J, Lindley RI. Barricades and brickwalls – a qualitative study exploring perceptions of medication use and deprescribing in long-term care. *BMC Geriatr* 2016; 16: 1–11.
14. Harriman K, Howard L, McCracken R. Deprescribing medication for frail elderly patients in nursing homes: a survey of Vancouver family physicians. *B C Med J* 2014; 56: 436–41.
15. The National Institute for Health and Care Excellence [NICE]. Managing medicines in care homes. 2014.
18. Song X, Mitnitski A, Rockwood K. Prevalence and 10-year outcomes of frailty in older adults in relation to deficit accumulation. *J Am Geriatr Soc* 2010; 58: 681–7.
19. Santos-Eggimann B, Cuénoud P, Spagnoli J, Junod J. Prevalence of frailty in middle-aged and older community-dwelling Europeans living in 10 countries. *J Gerontol A Biol Sci Med Sci* 2009; 64: 675–81.
20. Soong J, Poots A, Scott S et al. Quantifying the prevalence of frailty in English hospitals. *BMJ Open* 2015; 5: e008456.
21. Fried LP, Tangen CM, Walston J et al. Frailty in older adults: evidence for a phenotype *J Gerontol. A Biol Sci Med Sci* 2001; 56:M146–57.
22. Panel. ABCUE. American Geriatrics Society 2015 updated Beers criteria for potentially inappropriate medication use in older adults. *J Am Geriatr Soc* 2015; 63: 2227–46.
23. O'Mahony D, O'Sullivan D, Byrne S, O'Connor MN, Ryan C, Gallagher P. STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. *Age Ageing* 2015; 44: 213–8.
24. Kuhn-Thiel AM, Weiss C, Wehling M. Consensus validation of the FORTA [Fit FOR The Aged] List: a clinical tool for increasing the appropriateness of pharmacotherapy in the elderly. *Drugs Aging* 2014; 31: 131–40.
25. Gallagher PF, O'Connor MN, O'Mahony D. Prevention of potentially inappropriate prescribing for elderly patients: a randomized controlled trial using STOPP/START. *Clin Pharmacol Ther* 2011; 89: 845–54.
26. Dalleur O, Boland B, Losseau C et al. Reduction of potentially inappropriate medications using the STOPP criteria in frail older inpatients: a randomised controlled study. *Drugs Aging* 2014; 31: 291–8.
27. O'Connor M, O'Sullivan D, Gallagher P, Eustace J, Byrne S, O'Mahony D. Prevention of hospital-acquired adverse drug reactions in older people using STOPP/START criteria: a cluster randomized controlled trial. *J Am Geriatr Soc* 2016; 64: 1558–1566.
28. Nyborg G, Straand J, Klovning A, Brekke M. The Norwegian General Practice–Nursing Home criteria [NORGE-P-NH] for potentially inappropriate medication use: a web-based Delphi study. *Scand J Prim Health Care* 2015; 33: 134–41.
29. Yourman LC, Lee SJ, Schonberg MA, Widera EW, Smith AK. Prognostic indices for older adults: a systematic review. *Jama* 2012; 307: 182–92.
30. Dalkey NC Delphi. P-3704 RAND. Santa Monica, CA: RAND Corp, 1967.

31. Crome P, Lally F, Cherubini A et al. Exclusion of older people from clinical trials: professional views from nine European countries participating in the PREDICT study. *Drugs Aging* 2011; 28: 667–77.
32. Matell MS, Jacoby J. Is there an optimal number of alternatives for Likert scale items? *Study. Educ Psychol Meas* 1971; 31: 657–74.
33. Seeman E. Evidence that calcium supplements reduce fracture risk is lacking. *Clin J Am Soc Nephrol* 2010; 1: S3–11.
35. Jones R, Sheehan B, Phillips P et al. DOMINO-AD protocol: donepezil and memantine in moderate to severe Alzheimer's disease – a multicentre RCT. *Trials* 2009; 10: 57.
36. Howard R, McShane R, Lindesay J et al. Nursing home placement in the Donepezil and Memantine in Moderate to Severe Alzheimer's Disease [DOMINO-AD] trial: secondary and post-hoc analyses. *Lancet Neurol* 2015; 14: 1171–81.
37. Walter LC, Brand RJ, Counsell SR et al. Development and validation of a prognostic index for 1-year mortality in older adults after hospitalization. *JAMA* 2001; 285: 2987–2994.
39. <https://clinicaltrials.gov/ct2/show/NCT02097654>

Supplementary references :

3. Eurostat. Causes of death statistics - people over 65. 2014.
10. Gallagher P, Barry P, O'Mahony D. Inappropriate Prescribing in the elderly. *J Clin Pharm Ther.* 2007; 32: 113-121
12. Grace AR, Briggs R, Kieran RE, Corcoran RM, Romero-ortuno R, Coughlan TL et al. A comparison of beers and STOPP criteria in assessing potentially inappropriate medications in nursing home residents attending the emergency department. *J Am Med Dir Assoc.* 2014; 15: 830-834
16. The National Institute for Health and Care Excellence [NICE]. Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes. 2015.
17. The Health Information and Quality Authority [HIQA]. Medicines Management Guidance. 2015.
34. Castelo-Branco C, Cortés, Ferrer M. Treatment persistence and compliance with a combination of calcium and vitamin D. *Climacteric.* 2010; 13: 578-584
38. Zekry D, Loures Valle BH, Lardi C, Graf C, Michel JP, Gold G et al. Geriatrics index of comorbidity was the most accurate predictor of death in geriatric hospital among six comorbidity scores. *J Clin Epidemiol.* 2010; 63: 1036-1044.
40. Garfinkel D, Zur-Gil S, Ben-Israel J. The war against polypharmacy: a new cost effective geriatric palliative approach for improving drug therapy in disabled elderly people. *Isr Med Assoc J.* 2007; 9: 430-434
41. McKean M, Pillans P, Scott IA. A medication review and deprescribing method for hospitalised older patient receiving multiple medications. *Intern Med J.* 2016; 46: 35-42
42. Potter K, Flicker L, Page A, Etherton-Beer C. Deprescribing in Frail Older People: A Randomised Controlled Trial. *PLoS One.* 2016; 11:
43. Kutner JS, Blatchford PJ, Taylor DH, Jr., Ritchie CS, Bull JH, Fairclough DL, et al. Safety and benefit of discontinuing statin therapy in the setting of advanced, life-limiting illness: a randomized clinical trial. *JAMA internal medicine.* 2015; 175: 691-700.
44. Bayliss EA, Bronsert MR, Reifler LM, Ellis JL, Steiner JF, McQuillen DB, et al. Statin prescribing patterns in a cohort of cancer patients with poor prognosis. *Journal of palliative medicine.* 2013; 16: 412-8.
45. Zoungas S, Curtis A, Tonkin A, McNeil J. Statins in the elderly: an answered question? *Current opinion in cardiology.* 2014; 29: 372-80.
46. Mancia G, Fagard R, Narkiewicz K, Redon J, Zanchetti A, Bohm M, et al. 2013 ESH/ESC Practice Guidelines for the Management of Arterial Hypertension. *Blood pressure.* 2014; 23: 3-16.
47. Cleland JG. Is aspirin useful in primary prevention? *Eur Heart J.* 2013; 34: 3412-8.
48. Ballard C, Margallo-Lana M, Juszczak E, Douglas S, Swann A, Thomas A, et al. Quetiapine and rivastigmine and cognitive decline in Alzheimer's disease: randomised double blind placebo controlled trial. *Bmj.* 2005; 330: 874.
49. Ballard C, Lana MM, Theodoulou M, Douglas S, McShane R, Jacoby R, et al. A randomised, blinded, placebo-controlled trial in dementia patients continuing or stopping neuroleptics [the DART-AD trial]. *PLoS medicine.* 2008; 5: e76.
50. Cohen-Mansfield J, Lipson S, Werner P, Billig N, Taylor L, Woosley R. Withdrawal of haloperidol, thioridazine, and lorazepam in the nursing home: a controlled, double-blind study. *Arch Intern Med.* 1999; 159: 1733-40.

51. Ruths S, Straand J, Nygaard HA, Aarsland D. Stopping antipsychotic drug therapy in demented nursing home patients: a randomized, placebo-controlled study--the Bergen District Nursing Home Study [BEDNURS]. *International journal of geriatric psychiatry*. 2008; 23: 889-95.
52. Schneider LS, Tariot PN, Dagerman KS, Davis SM, Hsiao JK, Ismail MS, et al. Effectiveness of atypical antipsychotic drugs in patients with Alzheimer's disease. *The New England journal of medicine*. 2006; 355: 1525-38.
53. Qaseem A, Snow V, Cross JT, Jr., Forcica MA, Hopkins R, Jr., Shekelle P, et al. Current pharmacologic treatment of dementia: a clinical practice guideline from the American College of Physicians and the American Academy of Family Physicians. *Annals of internal medicine*. 2008; 148: 370-8.
54. Waldemar G, Dubois B, Emre M, Georges J, McKeith IG, Rossor M, et al. Recommendations for the diagnosis and management of Alzheimer's disease and other disorders associated with dementia: EFNS guideline. *European journal of neurology : the official journal of the European Federation of Neurological Societies*. 2007; 14: e1-26.
55. Herrmann N, Gauthier S. Diagnosis and treatment of dementia: 6. Management of severe Alzheimer disease. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne*. 2008; 179: 1279-87.
56. Sorbi S, Hort J, Erkinjuntti T, Fladby T, Gainotti G, Gurvit H, et al. EFNS-ENS Guidelines on the diagnosis and management of disorders associated with dementia. *European journal of neurology : the official journal of the European Federation of Neurological Societies*. 2012; 19: 1159-79.
57. BNF. BNF 67 The Authority on the Selection and Use of Medicines. March - September 2014.
58. Ramsdell J. Use of theophylline in the treatment of COPD. *Chest*. 1995;107[5 Suppl]:206s-9s.
59. Ohnishi A, Kato M, Kojima J, Ushiana H, Yoneko M, Kawai H. Differential pharmacokinetics of theophylline in elderly patients. *Drugs & aging*. 2003; 20: 71-84.
60. Rabe KF, Hurd S, Anzueto A, Barnes PJ, Buist SA, Calverley P, et al. Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: GOLD executive summary. *American journal of respiratory and critical care medicine*. 2007; 176: 532-55.
61. GOLD. Global Initiative for Chronic Obstructive Lung Disease - A Guide for Healthcare Professionals. 2015.
62. Makris UE, Abrams RC, Gurland B, Reid MC. Management of persistent pain in the older patient: a clinical review. *Jama*. 2014; 312: 825-36.
63. O'Neil CK, Hanlon JT, Marcum ZA. Adverse effects of analgesics commonly used by older adults with osteoarthritis: focus on non-opioid and opioid analgesics. *The American journal of geriatric pharmacotherapy*. 2012; 10: 331-42.
64. Bjordal JM, Ljunggren AE, Klovning A, Slordal L. Non-steroidal anti-inflammatory drugs, including cyclo-oxygenase-2 inhibitors, in osteoarthritic knee pain: meta-analysis of randomised placebo controlled trials. *Bmj*. 2004; 329[7478]: 1317.
65. Yood RA, Guidelines ACoRSoRA. Guidelines for the management of rheumatoid arthritis: 2002 update. 2002.
66. Gravas S, Bachmann A, Descazeaud A, Drake M, Gratzke C, Madersbacher S, et al. Guidelines on the management of non-neurogenic male lower urinary tract symptoms [LUTS], incl. benign prostatic obstruction [BPO]. *Eur Assoc Urol*. 2014.
67. Gratzke C, Bachmann A, Descazeaud A, Drake MJ, Madersbacher S, Mamoulakis C, et al. EAU guidelines on the assessment of non-neurogenic male lower urinary tract symptoms including benign prostatic obstruction. *European urology*. 2015; 67: 1099-109.
68. Kirkman MS, Briscoe VJ, Clark N, Florez H, Haas LB, Halter JB, et al. Diabetes in older adults. *Diabetes care*. 2012; 35: 2650-64.
69. Diabetes. AGSPCfEw. Guidelines for improving the care of the older person with diabetes mellitus. *Journal of the American Geriatrics Society*. 2003; 51: 265-80.
70. Volkert D, Berner Y, Berry E, Cederholm T, Bertrand PC, Milne A, et al. ESPEN guidelines on enteral nutrition: geriatrics. *Clinical Nutrition*. 2006; 25: 330-60.
71. Hooton TM, Bradley SF, Cardenas DD, Colgan R, Geerlings SE, Rice JC, et al. Diagnosis, prevention, and treatment of catheter-associated urinary tract infection in adults: 2009 International Clinical Practice Guidelines from the Infectious Diseases Society of America. *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*. 2010; 50: 625-63.
72. Stevens DL, Bisno AL, Chambers HF, Dellinger EP, Goldstein EJ, Gorbach SL, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the infectious diseases society of America. *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*. 2014; 59: 147-59.
73. Thomas K, Crook A, Foster K, Mason J, Chalmers J, Bourke J, et al. Prophylactic antibiotics for the prevention of cellulitis [erysipelas] of the leg: results of the UK Dermatology Clinical Trials Network's PATCH II trial. *The British journal of dermatology*. 2012; 166: 1