Supplementary Data

Title: Prescriber Implementation of STOPP/START Recommendations for Hospitalised Older Adults: A Comparison of a Pharmacist Approach and a Physician Approach

Journal Name: Drugs & Aging

Kieran Dalton [a], Denis O'Mahony [b, c], David O'Sullivan [a], Marie N. O'Connor [c], Stephen Byrne [a]

[a] Pharmaceutical Care Research Group, School of Pharmacy, University College Cork, Cork, Ireland.

[b] Department of Medicine, University College Cork, Cork, Ireland.

[c] Geriatric Medicine, Cork University Hospital, Cork, Ireland.

Corresponding author e-mail address: kieran.dalton@ucc.ie and stephen.byrne@ucc.ie

Appendix 1

Table 3: Pharmacist recommendations for "*missing medications*" identified by medication reconciliation that would have been identified by START criteria

START-based Recommendations	
Cardiovascular System	**22/27**
Warfarin with chronic atrial fibrillation	2/3
Aspirin with chronic atrial fibrillation where warfarin is contraindicated	4/4
Aspirin or clopidogrel with a documented history of atherosclerotic coronary, cerebral or peripheral vascular disease in patients with sinus rhythm	7/9
Statin therapy with history of coronary, cerebral, or peripheral artery disease without contraindication	8/9
ACE-inhibitor with chronic heart failure	0/1
Beta-blocker with chronic stable angina	1/1
Respiratory System	**16/20**
Regular inhaled beta 2 agonist or anticholinergic agent for mild to moderate asthma or COPD	5/7
Regular inhaled corticosteroid for moderate-severe asthma or COPD, where predicted FEV1 < 50%	11/13
Central Nervous System	**4/4**
Antidepressant drug in the presence of moderate-severe depressive symptoms lasting at least three months	4/4
Musculoskeletal System	**8/12**
Disease-modifying anti-rheumatic drug (DMARD) with active moderate-severe rheumatoid disease lasting > 12 weeks	0/1
Bisphosphonates in patients taking maintenance oral corticosteroid therapy	1/2
Calcium and vitamin D supplementation in patients with known osteoporosis, fragility fracture or dorsal kyphosis	7/9
Endocrine System	**8/8**
Metformin with type 2 diabetes mellitus +/- metabolic syndrome	2/2
ACE-inhibitor or angiotensin 2 receptor blocker in patients with diabetes and nephropathy	1/1
Antiplatelet therapy in those with diabetes mellitus and one or more major cardiovascular risk factors	1/1
Statin therapy in patients with diabetes mellitus and one or more major cardiovascular risk factors	4/4
Total	**58/71**

ACE: Angiotensin Converting Enzyme. COPD: Chronic Obstructive Pulmonary Disease. FEV1: Forced Expiratory Volume in 1 second.

Appendix 2

Table 4: Prescriber Implementation Rates for START Recommendations: Physician versus Pharmacist (including recommendations for "*missing medications*" identified by medication reconciliation that would have been identified by START criteria)

START-based Recommendations	Physician	Pharmacist	*p*-value†
Cardiovascular System	**29/37**	**26/42**	**0.1121**
Warfarin with chronic atrial fibrillation	15/18	2/3	0.4961
Aspirin with chronic atrial fibrillation where warfarin is contraindicated	2/3	4/5	0.6733
Aspirin or clopidogrel with a documented history of atherosclerotic coronary, cerebral or peripheral vascular disease in patients with sinus rhythm	0/2	9/14	0.0865
Antihypertensive therapy where systolic blood pressure consistently > 160 mmHg	1/1	-	-
Statin therapy with history of coronary, cerebral, or peripheral artery disease without contraindication	8/9	9/12	0.2367
ACE inhibitor with chronic heart failure	3/4	1/5	0.0989
ACE inhibitor following acute myocardial infarction	-	0/1	-
Beta-blocker with chronic stable angina.	-	1/2	-
Respiratory System		**16/20**	**-**
Regular inhaled beta 2 agonist or anticholinergic agent for mild to moderate asthma or COPD	-	5/7	-
Regular inhaled corticosteroid for moderate-severe asthma or COPD, where predicted FEV1 < 50%.	-	11/13	-
Central Nervous System		**4/4**	
Antidepressant drug in the presence of moderate-severe depressive symptoms lasting at least three months.	-	4/4	-
Gastrointestinal System	**1/1**	**-**	**-**
Proton Pump Inhibitor with severe gastro-oesophageal acid reflux disease or peptic stricture requiring dilatation.	1/1	-	-
Musculoskeletal System	**97/109**	**14/31**	**< 0.0001***
Disease-modifying anti-rheumatic drug (DMARD) with active moderate-severe rheumatoid disease lasting > 12 weeks	-	0/1	-
Bisphosphonates in patients taking maintenance oral corticosteroid therapy	14/18	2/12	0.001*
Calcium and vitamin D supplementation in patients with known osteoporosis, fragility fracture or dorsal kyphosis	83/91	12/18	0.0045*
Endocrine System	**12/12**	**11/18**	**0.0136***
Metformin with type 2 diabetes mellitus +/- metabolic syndrome	1/1	2/2	‡
ACE-inhibitor or angiotensin 2 receptor blocker in patients with diabetes and nephropathy	7/7	1/1	‡
Antiplatelet therapy in those with diabetes mellitus and one or more major cardiovascular risk factors	2/2	2/2	‡
Statin therapy in patients with diabetes mellitus and one or more major cardiovascular risk factors	2/2	6/13	0.1553
Total START Recommendations	**139/159**	**71/115**	**< 0.0001***
Total STOPP/START Recommendations	**376/451**	**171/370**	**< 0.0001***

ACE: Angiotensin Converting Enzyme. COPD: Chronic Obstructive Pulmonary Disease. FEV1: Forced Expiratory Volume in 1 second.
†*p*-value calculated using chi-squared test. * Statistically significant difference observed ($p < 0.05$). ‡ *p*-value cannot be calculated.

Appendix 3

Table 5: Comparable Clinical Outcomes between interventions

Clinical Outcome Measure	Physician	Pharmacist
Adverse Drug Reactions (ADRs):		
Control Patients with ADRs (%)	78 (21)	78 (20.7)
Intervention Patients with ADRs (%)	42 (11.7)	50 (13.9)
Absolute Risk Reduction in patients with ADRs	9.3%	6.8%
Relative Risk Reduction in patients with ADRs	44.3%	32.9%
Median Length of Hospital Stay:		
Control Patients (IQR)	8 days (4 – 14)	9 days (5 – 16)
Intervention Patients (IQR)	8 days (4 – 14)	8 days (5 – 13.5)
Significance level	Not stated in paper or supplementary data	$p = 0.444$
Mortality:		
Control Patients	11	17
Intervention Patients	9	17
Significance level	$p = 0.6$	$p = 0.9$
	"in-hospital deaths"	"died during their index hospital stay"

IQR = Interquartile range.