Amsterdam UMC
University Medical Centers

The inter-professional student-run medication review program

Rowan Sultan, BSc
Michael Reumerman, MD

T.van den Beukel, H.Daelmans, H.Springer, M.Muller, M.C. Richir, M.A.van Agtmael & J.Tichelaar

Inter-professional

Medication review program

Inter-professional

Amsterdam UMC
University Medical Centers

Interprofessional CPT education

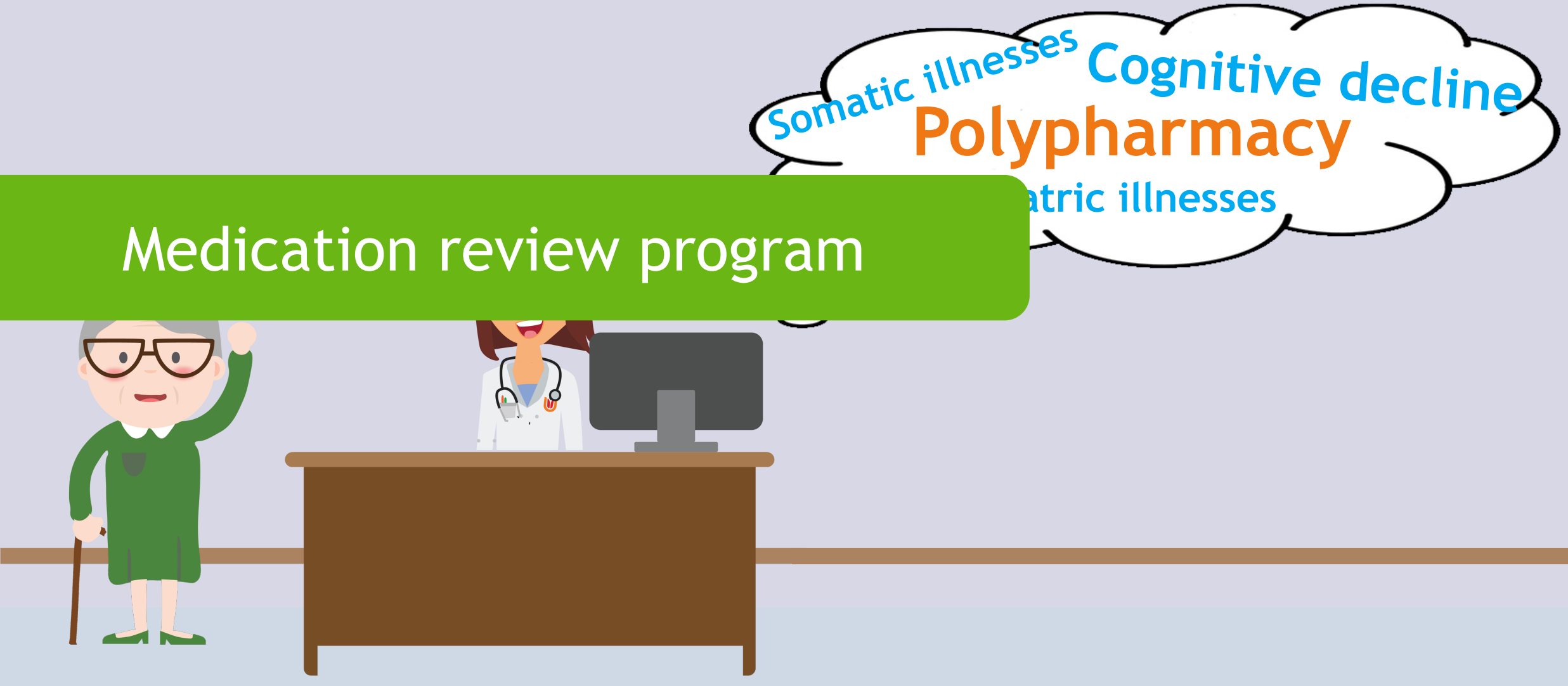
Rowan Sultan, BSc

Section Pharmacotherapy, department of Internal Medicine, AmsterdamUMC, location VUmc

r.sultan@amsterdamumc.nl

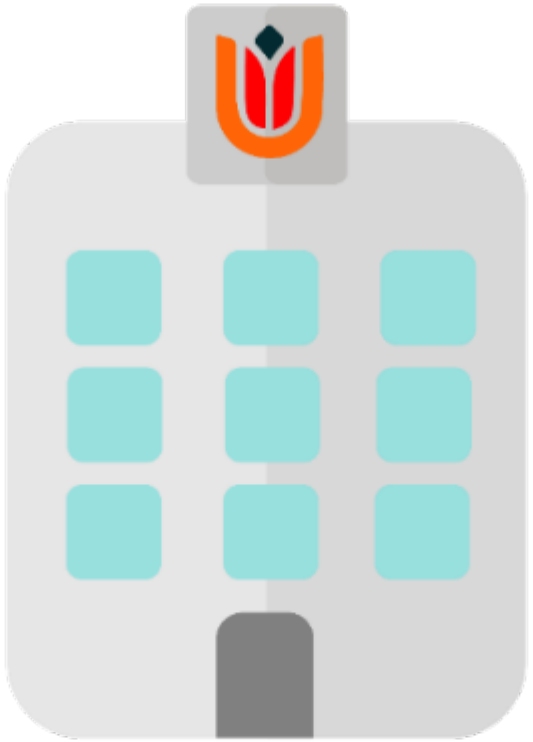
Recipe
Research & Expertise Center in Pharmacotherapy Education

Medication review program



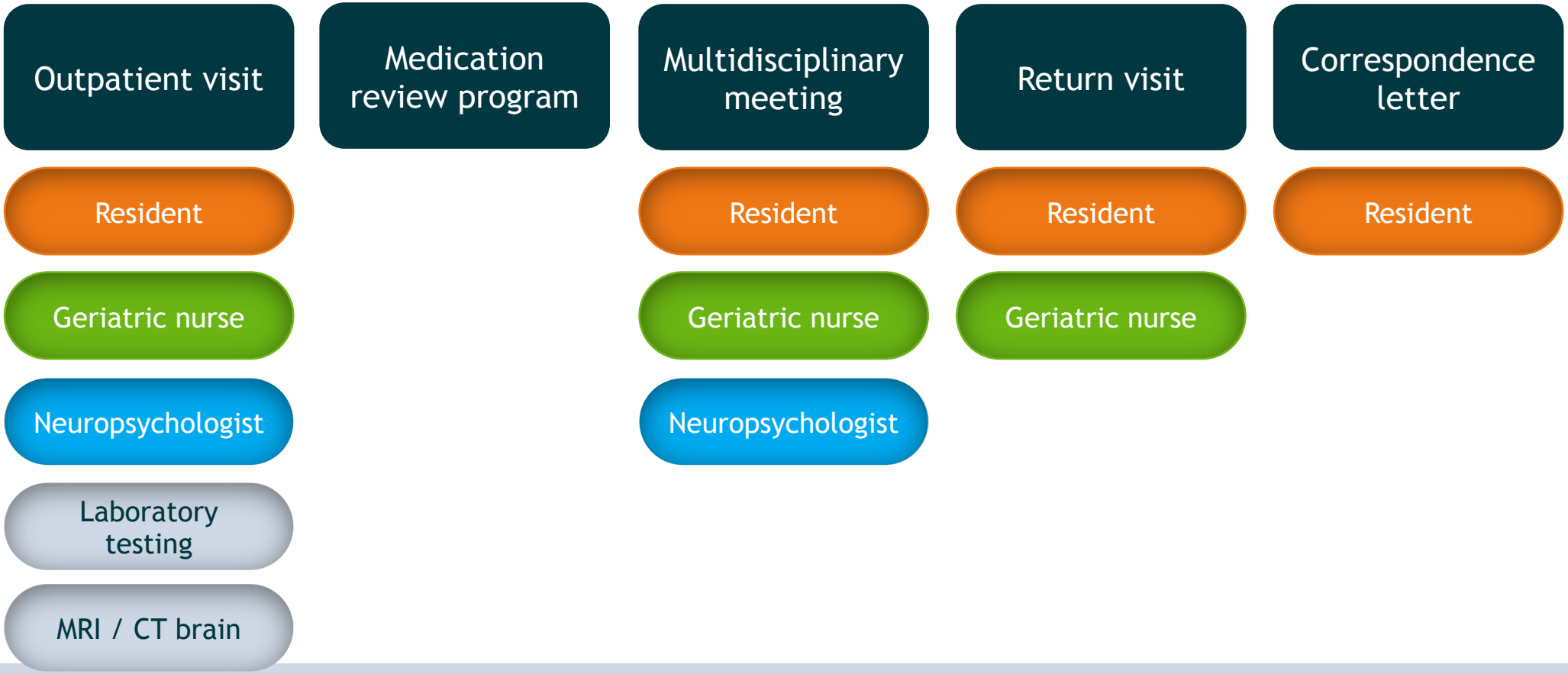
Geriatric medicine department Amsterdam UMC

Memory clinic



- Assessment of cognitive status
- 4 patients per week

Geriatric medicine department Amsterdam UMC



ISP = Inter-professional student-led medication review program

ISP team

Physician Assistant OR
Advanced Nursing Practice

inholland
university of
applied sciences

VU UNIVERSITY AMSTERDAM

Medicine
Bachelor & Master

Pharmacy
Master

Utrecht University

Study aim

Is the addition of the ISP team to standard care associated with more changes made in medication lists 6 weeks after the outpatient visit?

Is the addition of the ISP team to standard care associated with a reduction of ADRs 3 months after the outpatient visit?

ISP = Inter-professional student-led medication review program

Patients

Nov 2018 – Jan 2020

N = 200

Patient allocation by medical secretary

Informed consent

Measurements at baseline

- Independent review panel, blinded for allocation analyzed medication list in medical file
- According to 2nd version of START/STOPP criteria[1]

- Clinical pharmacologist, blinded for allocation, analyzed all ADRs reported in the electronic healthcare record
- ADRs were analyzed by causality[2,3] and severity[4]

[1] Gallagher et al. *Int. J. Clin. Pharmacol Ther* (2008)
[2] WHO-Uppsala monitoring centre scale
[3] Naranjo et al. *Clin Pharmacol Ther* (1981)
[4] Hartwig et al. *Am J Hosp Pharm* (1992)

START/STOPP criteria

START	Bisphosphonates, calcium and vitamin D in patients with diagnosed osteoporosis.
STOPP	Drugs with anticholinergic side effects in patients with delirium or dementia (eg.Oxybutynine & amitriptyline).

[1] Translated and addapted to the situation in the Netherlands, W. Knol, Ned Tijdschr Geneeskd, 2015; 159; A8904

Hartwig severity scale

Level 1	
Level 2	Suspected drug should be withheld, discontinued or changed. No antidote or treatment required.
Level 3	Suspected drug should be withheld, discontinued or changed AND/OR requires antidote or treatment.
Level 4 – 7b	

[1] Hartwig et al. *Am J Hosp Pharm* (1992)

Measurements at follow-up

- Correspondence letters were assessed
- Medication overview request at 6 weeks and 3 months

- Clinical pharmacologist, blinded for allocation, performed a telephone ADRs interview
- Previously detected ADRs, potentially new ADRs, causality[1,2] and severity[3] were assessed

[1] WHO-Uppsala monitoring centre scale
[2] Naranjo et al. *Clin Pharmacol Ther* (1981)
[3] Hartwig et al. *Am J Hosp Pharm* (1992)

Outcomes

Number of identified START – STOPP items
in correspondence letter.

Number of changes in medication overview of local pharmacist
6 weeks after the correspondence letter.

Number of identified adverse drug reactions
in the correspondence letter.

Number of identified adverse drug reactions
3 months after the outpatient visit.

Inclusion

Nov 2018 – Jan 2020

ISP = Inter-professional student-led medication review program

Patient characteristics

		Standard care (n = 116)	Standard care + ISP (n = 100)	*p* value
Age, years, mean (SD)		79.57 (5.516)	78.81 (5.181)	0.301
Living arrangements	Alone (%)	42 (36.2)	42 (42.0)	0.384
	With partner or family (%)	63 (54.3)	51 (51.0)	0.627
	Sheltered housing (%)	9 (7.8)	3 (3.0)	0.128
Charlson comorbidity index, median (IQR)		5 (4-6)	5 (4-6)	0.519
Cognitive diagnosis	No cognitive disorder (%)	19 (16.4)	20 (20.0)	0.490
	Mild cognitive impairment (%)	30 (25.9)	26 (26.0)	0.982
	Dementia (%)	67 (57.8)	54 (54.0)	0.579
Medication	Median (IQR)	5 (3-8)	5 (3-7.75)	0.878
	n = 0-4 (%)	51 (44.0)	44 (44.0)	0.891
	n = 5-9 (%)	50 (43.1)	42 (42.0)	0.870
	n ≥ 10 (%)	15 (12.9)	14 (14.0)	0.818

ISP = Inter-professional student-led medication review program

START / STOPP items

	Standard care (n = 116)	Standard care + ISP (n = 100)	*p* value
Review panel (%)	251 (100)	206 (100)	0.608
Resident (%)	17 (7)	14 (7)	0.992
ISP team (%)	-	128 (62)	-

ISP = Inter-professional student-led medication review program

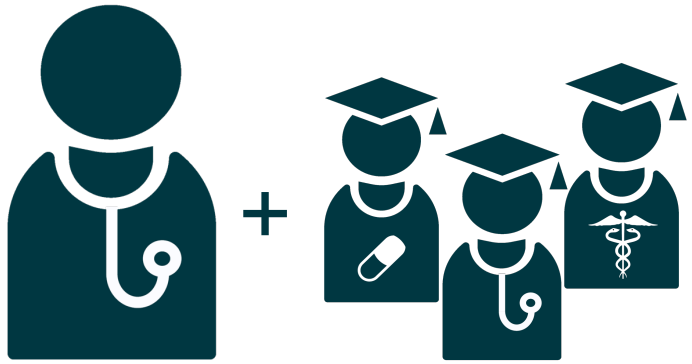
START / STOPP items medication list at 6 weeks

Standard care
(n = 116)

22 / 251
(9%)

>200%

Standard care + ISP
(n = 100)



39 / 206
(19%)

ISP = Inter-professional student-led medication review program

Adverse drug reactions at baseline

	Standard care (n = 76)	Standard care + ISP (n = 66)	*p* value
ADR's detected by resident	10	9	0.891
ADR's detected by ISP team	-	44	-
Total number of ADR's detected	10	48	<0.001

ISP = Inter-professional student-led medication review program

Adverse drug reactions interventions and follow-up

	Standard care (n = 76)	Standard care + ISP (n = 66)	*p* value
Total number of ADR detected at baseline	10	48	<0.001
Total number of interventions (% of total ADRs)	6 (60)	30 (63)	<0.001

ISP = Inter-professional student-led medication review program

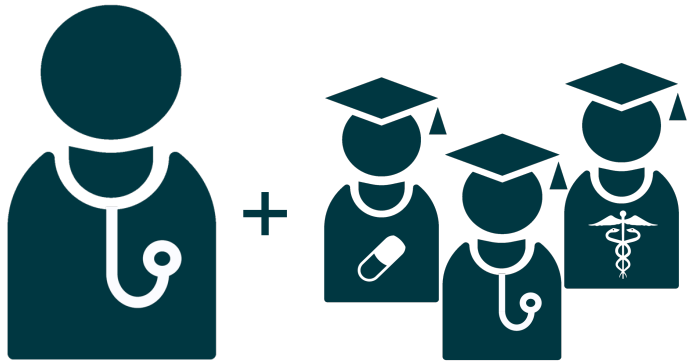
Adverse drug reactions at follow-up

Standard care
(n = 76)

n = 52
(0.68 ADRs/patient)

-33%

Standard care + ISP
(n = 66)



n = 30
(0.45 ADRs/patient)

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Conclusion

The addition of an ISP to standard care is associated with an optimization of the medication 6 weeks after the outpatient visit.

The addition of an ISP to standard care is associated with a reduced number of adverse drug reactions 3 months after the outpatient visit.

ISP = Inter-professional student-led medication review program

Future analyses

- Reasons why not all suggested medication changes were implemented
- Effect on quality of life and patient medication satisfaction
- Interprofessional (learning) benefits students

Acknowledgement

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Are there any questions?

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