A Patient-Centered Prescription Model assessing
the appropriateness of chronic drug therapy in older patients

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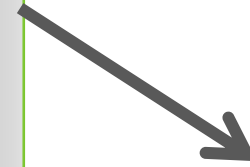
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When does polypharmacy mean overtratment?
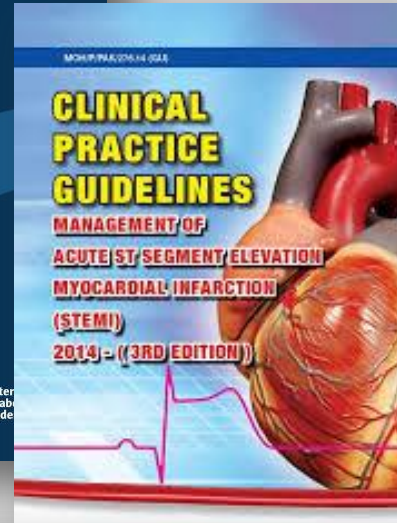
- To identify potentially inappropriate prescribing (IP) in a group of older patients

- and to optimize prescription **according to care goals** of each patient through a model which combines both the clinical judgement and the scientific evidence in a pragmatic and systematic approach.

We developed three descriptive observational studies:
> ➢ two studies in an Acute Care Elderly (ACE) Unit
> ➢ and one in a nursing home (NH).

- Variables collected for the analysis:
  - age
  - sex
  - admitting diagnosis
  - medication information:
    - number of drugs at admission
    - inappropriate prescription (IP)
  - and end-of-life (EOL) status (last months or year of life).

- Each patient's pharmacotherapeutic plan was assessed through application of the Patient-Centered Prescription (PCP) Model.

Patient-Centered Prescription Model

This is a systematic three step process carried out by a geriatrician and a clinical pharmacist.

1

Patient-centered assessment

-Care goal of each patient (survival, maintaining function or symptomatic control)

-Shared decisions
-Adherence

2

Diagnosis-centered assessment

-List patient health problems-drug-objective
-Evaluate applicability of CPG according to patient's care goal.

3

Drug-centered assessent

-Assess drugs with high iatrogenic risk
-Assess interactions, duplications, adjust dose to renal and hepatic function

Individidualized therapeutical plan

Comprehensive Geriatric Assessment

Multidisciplinary team

General data

	ACE[1]	NH[2]
Number of patients	382	110
Average age	86.7	86.4
Criteria for End-Of-Life (EOL)	30%	60%

1.- Acute Care Elderly
2.- Nursing Home

Pharmacological data

	ACE	NH	p
Average prescribed drugs	7.16	10.37	<0.05
Polypharmacy •Excessive Polypharmacy (EP)	80% 20%	95.5% 56.4%	<0.05
Patients with at least one IP	39.8%	92.7%	<0.05
EOL / non-EOL patients	• No differences EOL vs. non-EOL in Polypharmacy and average drugs: p>0.05 • **Differences EOL vs. non-EOL in IP: p<0.05**		

1.- Acute Care Elderly
2.- Nursing Home

Can PCP Model improve health outcomes?
Admission vs. discharge in ACE

- During admission drug therapy regimens were modified in 93.44% of cases with IP in ACE Unit.

- Patients with advanced dementia:

	At admission	One month after discharge	p
Average prescribed drugs	7.27	4.82	<0.05
Polypharmacy prevalence Excessive Polipharmacy	82.2% 20.5%	45.2% 1.36%	< 0.05
"Oligopharmacy" prevalence	26%	63%	<0.05

N.Molist, D.Sevilla, J.Amblàs, C.Codina , X.Gómez-Batiste, J.Mc Intosh, J.Espaulella. Optimizing drug therapy in patients with advanced dementia: A patient-centered approach. Eur.Ger.Med. 5 (2014) 66-71

Drugs according to target

Table 2
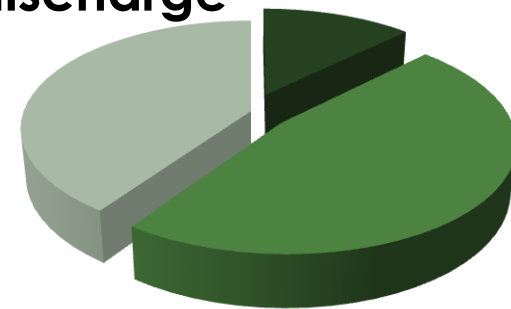Preventive, therapeutic and symptomatic medications affected by proposed changes in therapeutic goals.

	Average number of medications per patient				
	Admission	Discharge (including short-term and long-term medications)	Discharge (excluding short-term, admission-related medications)	Difference between admission and discharge	P
Preventive therapies	1.81 (24.8%)	1.44 (19.61%)	0.60 (12.65%)	−1.21 (−66.85%)	< 0.05
Primary	1.38 (18.9%)	1.30 (17.71%)	0.43 (8.92%)	−0.95 (−68.84%)	< 0.05
Secondary	0.43 (5.9%)	0.14 (1.90%)	0.17 (3.52%)	−0.26 (−60.46%)	< 0.05
Therapeutic treatments	3.12 (42.91%)	3.41 (46.45%)	2.27 (47.1%)	−0.85 (−27.24%)	< 0.05
Symptomatic treatment	2.34 (32.2%)	2.49 (33.92%)	1.93 (40.24%)	−0.41 (−17.52%)	< 0.05
Total	7.27	7.34	4.8	−2.45 (−66.3%)	< 0.05

Before admission
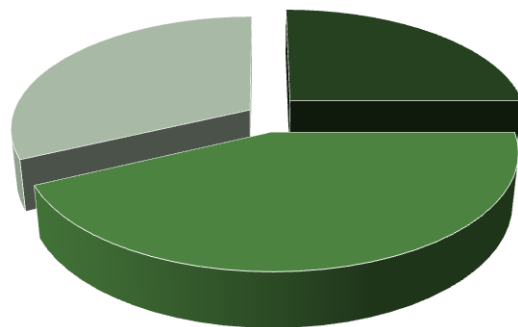
- preventive 24.8%
- etiological 42.9%
- symptomatic 32.2%

One month after discharge

- preventive 12.6%
- etiological 47.1%
- symptomatic 40.2%

N.Molist, D.Sevilla, J.Amblàs, C.Codina , X.Gómez-Batiste, J.Mc Intosh, J.Espaulella. Optimizing drug therapy in patients with advanced dementia: A patient-centered approach. Eur.Ger.Med. 5 (2014) 66-71

Relationship between polypharmacy and ADE

- Positive correlation between number of drugs and ADE incidence (p<0.05):

Number of daily drugs	% ADE
0-4	7.35
5-9	18.1
10 or more	28.6

- Inappropriate prescription was identified as a risk factor to suffer an ADE (37.7% vs 5.35% (**p<0.001**)).

N.Molist, J.Espaulella, D.Sevilla, J.Amblàs, C.Codina , J.Altimiras, X.Gómez-Batiste. A patient-centered prescription model assessing the appropriateness of chronic drug therapy in older patients at the end of life. Eur.Ger.Med. 6 (2015) 565-569

- Patients in NH present more polypharmacy and more indication of at least one IP (p<0.001).

- EOL patients present more frequently a potential indication of at least one IP.

- The PCP Model is a framework that helps minimizing IP in a high-risk group older patients through a suitable approach to individualize pharmacotherapy:
  - During admission drug therapy regimens were modified in 93.44% of cases with IP in ACE
  - Prevalence of polypharmacy decreased significantly, to almost half. And the prevalence of EOL patients with ≥10 drugs decreased 20.5% to 1.3%.

Thank you
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