Stronger together - optimizing pharmacotherapy on geriatric wards?

Clinicamp FOD 27/4/2018

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Project College Geriatrie 2017-18

- Identify **quality indicators** for appropriate prescribing on geriatric wards.
  - Interventions or modifiable factors with a positive influence on prescribing
- **National survey** to determine the presence of quality indicators on Belgian geriatric wards.

Tasks

Definition KB 15.02.99

- Definition quality indicators (internal)
- External quality evaluation
  - Development of indicators
  - Computerized registration model
  - Control of registered data
  - Yearly activity-report
  - Answering questions about evaluation
  - Report about usage of financial resources
  - Feedback for hospitals and physicians

Study about function of the Colleges 2013 : Geriatrics

- Specific quality projects (malnutrition, falls, delirium,…)
- External evaluation of the quality: indicators
  - + "meten is weten"

    Structure – process - results
  - Complex patients

    Extra registrations


pharmacie
VOIRE
SANG

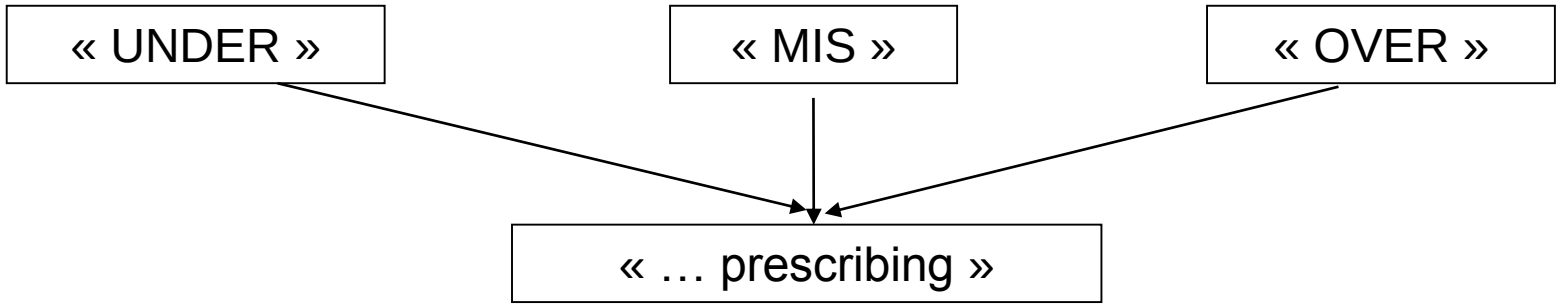
Prescriptions

- Appropriate prescription ?

« one prescription allowing a treatment with *efficacy* and *safe* , minimizing *costs*, and respecting the *choice* of the patient. » (Barber , 1996)

- Inappropriate prescription ?

3categories



Polypharmacy: STOPP&START

Screening Tool of Older Persons' Prescriptions (STOPP)

The following prescriptions are potentially inappropriate to use in patients aged 65 years and older.

Screening Tool to Alert to Right Treatment (START)

Unless an elderly patient's clinical status is end-of-life and therefore requiring a more palliative focus of pharmacotherapy, the following drug therapies should be considered where omitted for no valid clinical reason(s). It is assumed that the prescriber observes all the specific contraindications to these drug therapies prior to recommending them to older patients.

Gallagher P. Int J Clin Pharmacol Ther . 2008 Feb;46(2):72-83.

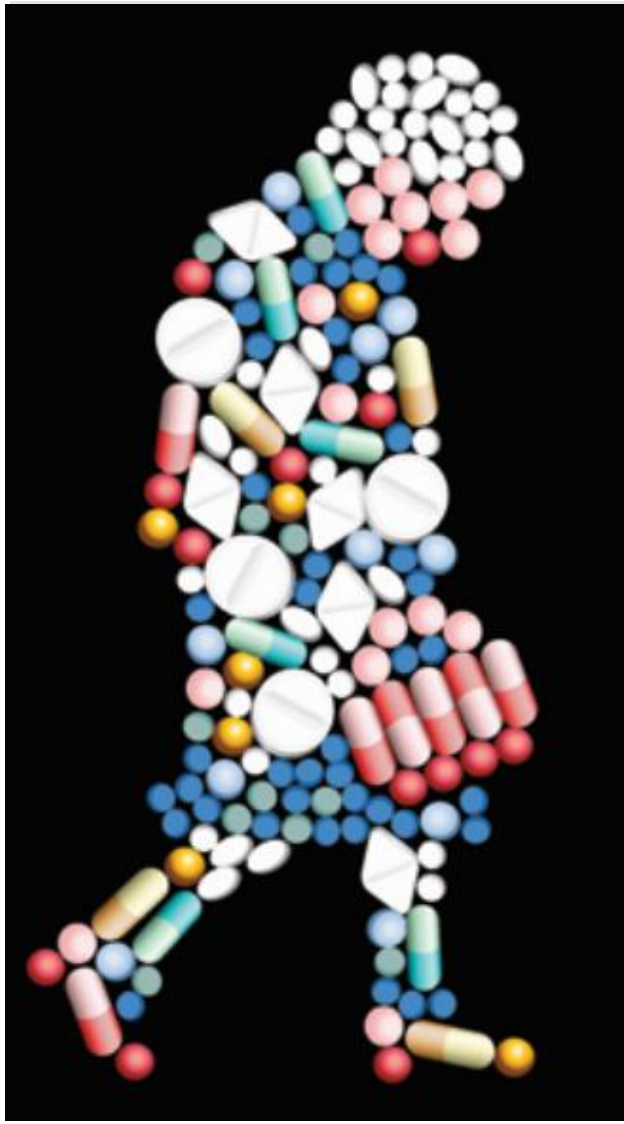
STOPP 2008

Cardiovascular system
Digoxin > 125 μg per day with impaired renal function (digoxin toxicity)
Thiazide diuretic with history of gout
β-blocker with COPD (recurrent exacerbation of COPD)
Diltiazem or verapamil with NYHA class III or IV heart failure 1 1 (severe CCF)
Calcium channel blockers with chronic constipation
Dipyridamole as monotherapy for cardiovascular secondary prevention
Aspirin with history of PUD without histamine H2 antagonist or PPI 2 1 (PUD)
Aspirin ≥150 mg/day
Aspirin with no history of coronary, cerebral or peripheral vascular symptoms or occlusive event
Central nervous system
TCA with dementia 2 2 (delirium, fall and fractured femur)
TCA with cardiac conductive abnormalities 1 0
TCA with constipation 1 0
TCA with prostatism or history of urinary retention 1 0
Long-term, long-acting benzodiazepines
Long-term neuroleptics in those with Parkinsonism
Prolonged use of first generation antihistamines
Gastrointestinal system
Diphenoxylate, loperamide or codeine phosphate for treatment of diarrhoea of unknown cause
Diphenoxylate, loperamide or codeine phosphate for severe infective gastroenteritis, i.e. bloody diarrhoea, high fever or severe systemic toxicity
PPI for peptic ulcer disease at full therapeutic dosage for > 8 weeks

Respiratory system
Theophylline as monotherapy for COPD 4 0
Systemic corticosteroids instead of inhaled corticosteroids for maintenance therapy in moderate–severe COPD
Musculoskeletal system
NSAID with history of PUD or gastrointestinal bleeding, unless with concurrent histamine H2 receptor antagonist, PPI or misoprostol
NSAID with moderate to severe hypertension
NSAID with heart failure
Long-term NSAID for relief of mild-moderate joint pain in osteoarthritis
Warfarin and NSAID together
NSAID with chronic renal failure
Long-term corticosteroid as monotherapy for rheumatoid or osteoarthritis
Long-term NSAID or colchicine for chronic treatment of gout where there is no contraindication to allopurinol
Urogenital system
Bladder antimuscarinic drugs with dementia
Antimuscarinic drugs with chronic prostatism
Endocrine system
β-blockers in those with diabetes mellitus and frequent hypoglycaemia
Drugs that adversely affect those who are prone to falls
Benzodiazepines
Neuroleptic drugs
Vasodilator drugs with postural hypotension
Long-term opiates in those with recurrent falls
Analgesic drugs
Use of long-term powerful opiates, e.g. morphine or fentanyl as first-line therapy for mild-moderate pain
Regular opiates for more than 2 weeks in those with chronic constipation without concurrent use of laxative
Long-term opiates in those with dementia unless indicated for palliative care or

Gallagher P. Int J Clin Pharmacol Ther . 2008 Feb;46(2):72-83.

Project College 2015-2016



Project 2015-2016

- 10 drugs selected by the College:
  USE in 45.086 geriatric stays (Riziv SHA database 2013)

Potentially overuse

- Neuro-psychotropic drugs

Benzodiazepines	=	18 %
TCAs	=	1 %
SSRIs	=	7 %
Antipsychotics	=	7 %
Any Neuro-psy drug	=	*26 %*

- Other drugs

NSAID	=	1 %
PPI	=	21 %
Statins	=	10%
Anticholinergic	=	7 %

Potentially underuse

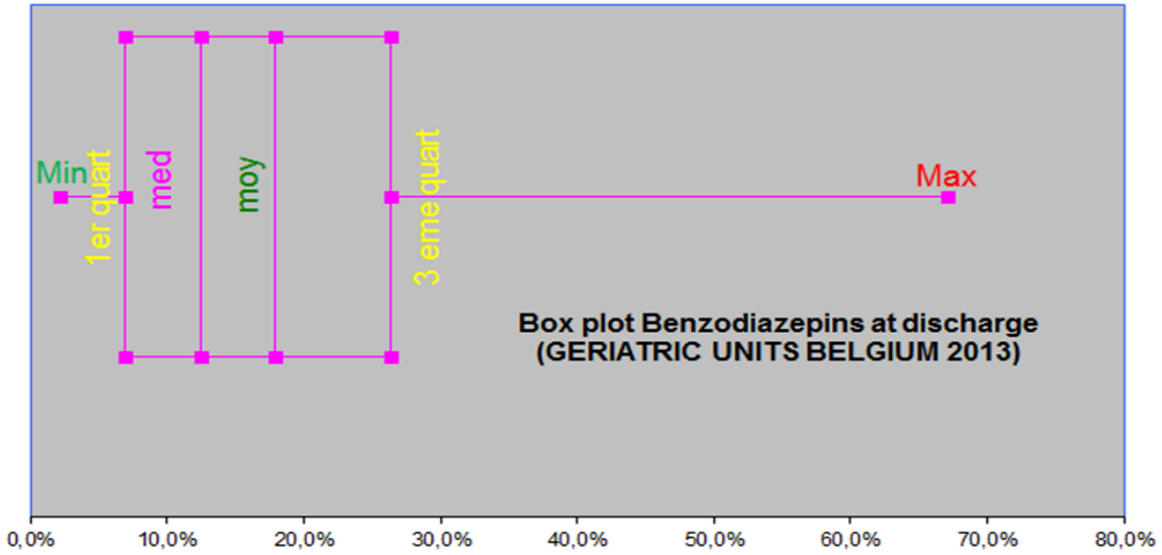
Vitamin D [vs. Osteoporosis]	=	50 %
Oral anticoagulant [vs. AFib]	=	14 %

Indicator	men 75	80	85	90	Total men	women 75	80	85	90	Total women	Total général
nb stays	2389	4532	4737	2941	14599	3982	8699	10272	7534	30487	**45086**
% stays with benzo at discharge	15%	15%	16%	13%	15%	19%	19%	20%	18%	19%	18%

10.Benzodiazepines (overuse ?) if long-term (i.e. > 1 month) and long-acting e.g. chlordiazepoxide, flurazepam, nitrazepam and benzodiazepines with long-acting metabolites e.g. diazepam [risk of prolonged sedation, confusion, impaired balance, falls].	% of patients on benzo % of patients on flunitrazepam WITHIN those with benzo At discharge	N05CD (benzo) or N05BA (benzo) N05CD03 (flunitrazepam)	ALL patients at discharge ALL patients at discharge

Benzo : 18 %

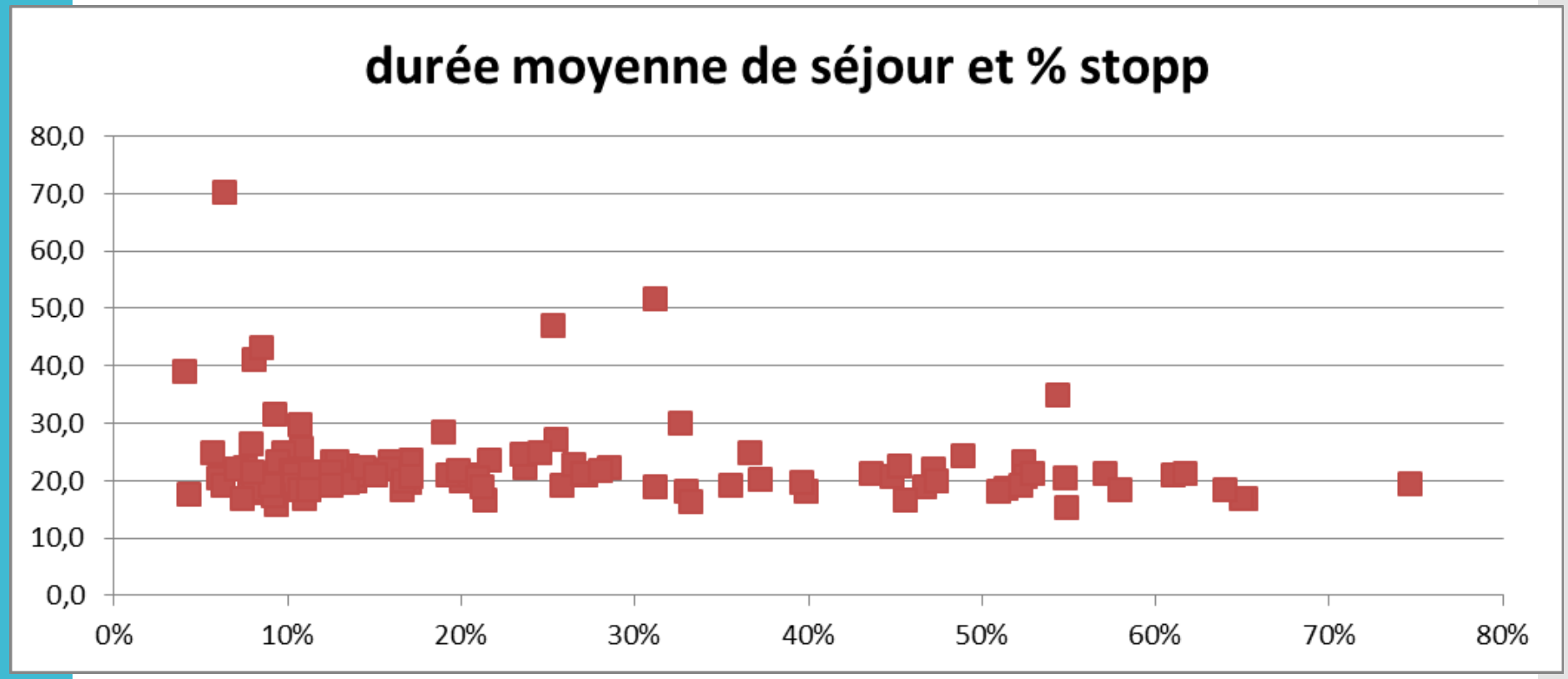
Minimum = 2,1%	
1er quartile = 6,9%	coefficient de variation
Médiane = 12,5%	78%
Moyenne = 17,8%	ecart interquartile (Q3-Q1)/Q1
3ieme quartile = 26,4%	2,82
Maximum = 67,1%	



Brussels

hop id	nb stays	% stays with NSAID at discharge	% stays with PPI at discharge	% stays with TCA at discharge	% stays with benzo at discharge	% stays with antipsychotics	% stays with SSRI at discharge	**% stays with anticholinergic**	% stays with statins at discharge	% stays with AVK	% stays with vit D	**% stays with psychotrop drugs at discharge**	**% stays with possible overuse at discharge**	% stays with AB
71007661	277	0,0%	4,3%	0,4%	3,6%	1,1%	1,4%	**2,9%**	1,1%	15,2%	49,5%	**6,1%**	**11,2%**	60,3%
71011027	420	0,2%	39,0%	0,0%	17,9%	6,9%	12,9%	**6,2%**	13,8%	13,6%	58,3%	**31,4%**	**62,6%**	69,8%
71040820	103	0,0%	1,9%	0,0%	4,9%	0,0%	1,0%	**2,9%**	1,9%	10,7%	75,7%	**5,8%**	**8,7%**	35,0%
71007760	68	0,0%	11,8%	0,0%	4,4%	2,9%	1,5%	**2,9%**	1,5%	23,5%	89,7%	**7,4%**	**16,2%**	44,1%
71008750	573	0,0%	11,3%	0,0%	9,6%	4,5%	3,5%	**2,8%**	3,5%	13,3%	49,6%	**13,8%**	**22,7%**	53,2%
71040622	30	0,0%	6,7%	0,0%	6,7%	0,0%	0,0%	**0,0%**	0,0%	23,3%	90,0%	**6,7%**	**13,3%**	50,0%
71072393	363	1,4%	44,1%	1,1%	41,0%	12,1%	22,3%	**14,0%**	18,5%	8,3%	68,0%	**57,9%**	**78,8%**	60,6%
71003802	194	0,0%	8,2%	0,0%	6,7%	0,5%	4,1%	**1,5%**	2,1%	11,9%	71,1%	**10,3%**	**16,5%**	42,3%
71054775	332	0,3%	24,4%	0,9%	19,0%	3,3%	13,3%	**6,9%**	11,4%	17,8%	80,1%	**29,5%**	**45,2%**	32,2%
71005384	91	0,0%	13,2%	0,0%	7,7%	0,0%	2,2%	**0,0%**	5,5%	16,5%	79,1%	**8,8%**	**23,1%**	40,7%
71014391	112	0,9%	3,6%	0,0%	5,4%	1,8%	0,0%	**0,9%**	0,9%	18,8%	77,7%	**7,1%**	**11,6%**	51,8%
71011126	1133	0,3%	8,6%	0,1%	7,1%	2,2%	3,5%	**1,8%**	1,7%	6,0%	17,9%	**10,8%**	**16,0%**	47,7%
71033296	282	0,4%	11,7%	0,4%	8,5%	5,7%	1,1%	**1,8%**	1,4%	9,2%	59,9%	**14,9%**	**24,5%**	62,8%
71005186	524	2,3%	49,0%	1,1%	43,5%	6,9%	20,2%	**11,1%**	21,2%	14,5%	59,5%	**55,0%**	**82,3%**	26,5%
71040325	179	0,0%	8,4%	0,0%	14,5%	1,1%	2,8%	**7,3%**	1,1%	23,5%	48,0%	**17,3%**	**29,1%**	49,7%

Length of stay?



Confusing factors?

- No correlation with length or number of stays, frequency of prescription, case-mix…

- Methodological decisions ?
  - Inclusion : all patients aged 75 +, hospitalized in G units in 2013
  - Exclusion criteria
    - patients staying at multiple units during one hospital stay
    - patients with strong opioids during all stay
    - short stays (≤ 9 days)
  - Unit of analysis : hospital stay strict in geriatric unit

  - Or…facturation bias ??

Project College 2017

identification and communication of performance factors

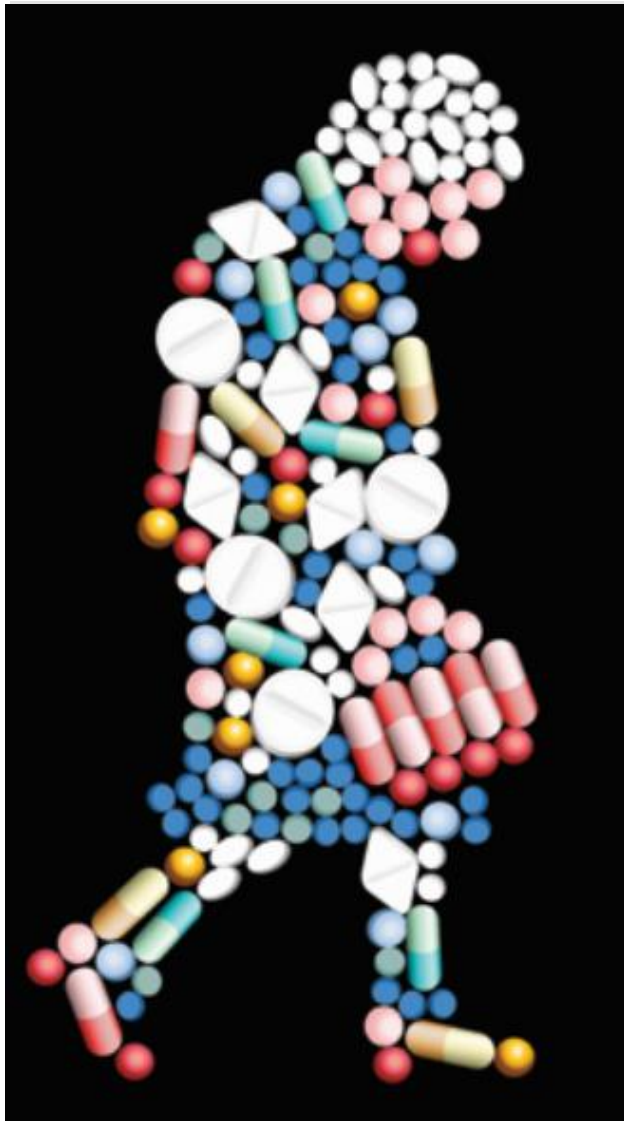
Individual and team factors	Prescriber knowledge of medications Prescriber knowledge of patient comorbidities Responsibility for prescribing often placed on the most junior member of teams
Patient-related factors	Patient's knowledge of their medication Patient's honesty regarding their medication use Patient's ability to communicate their medication use Patient's comorbidities
Work-environment factors	Sufficient staffing Sufficient time allocated for prescribing Comfortable workload Easy in-hours and out-of-hours access to pharmacist, GP and medical records
Task-related factors	Prescription type required Legibility of prescription Clear explanation for pharmacist and patient

Classification of factors that predispose to prescribing errors.

Project College 2017-2018

Identify **quality indicators** for appropriate prescribing on geriatric wards.
Interventions or modifiable factors with a positive influence on prescribing

National survey to determine the presence of quality indicators on Belgian geriatric wards.

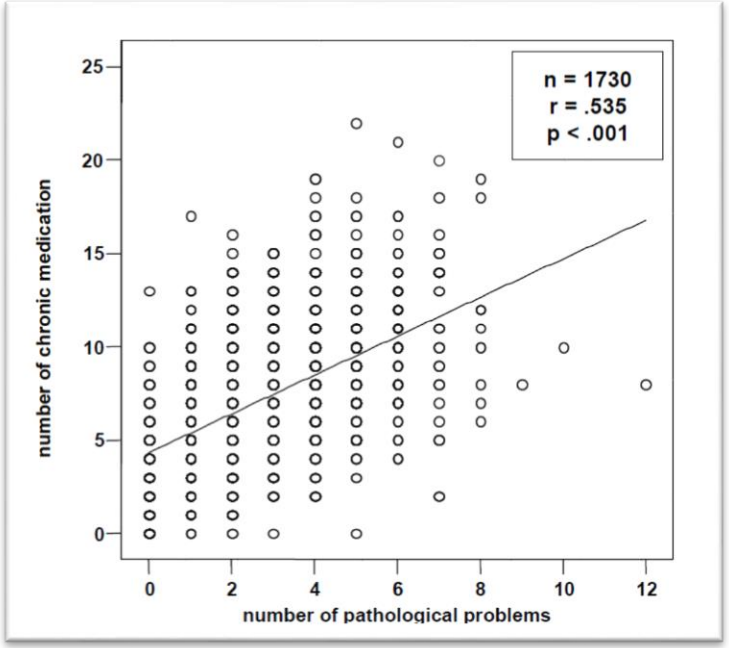


Content

- Background
- Aim
- Methods
  - Literature search
  - Delphi consensus
- Results
- Future perspectives

Background

- Increase in life expectancy
- Multiple chronic conditions -> high number op chronic medication
- Suboptimal prescribing is highly prevalent
  - Overuse
  - Inappropriate use
  - underuse
- Consequences of suboptimal prescribing
  - Interactions
  - Adverse drug events (hospitalizations, morbidity, mortality)
  - Decrease in functionality
  - Decrease of medication compliance
- Approaches
  - Comprehensive medication reviews
  - Educational approaches
  - Computer-based prescribing systems
  - Clinical pharmacist led interventions
  - Multifaceted interventions



Cijfers RIZIV 2012
(PHEBE study – KCE reports vol. 47A 2006)
J Am Geriatr Soc 2001;49: 200-209
Age and Ageing 2013 42 (3): 284-291

AIMS

- Identify **quality indicators** for appropriate prescribing on geriatric wards.
  - "quality indicator " = Interventions or modifiable factors with a positive influence on prescribing
- **National survey** to determine the presence of quality indicators on Belgian geriatric wards.

Methods

- Literature search:
  - PubMed and Embase
  - Inclusion criteria
    - **Interventions** and modifiable factors
    - a documented **positive impact** on prescribing
    - in patients who were admitted to **geriatric wards**
- Development of the national survey
  - Results literature search + expert opinion
  - Delphi consensus – 3 rounds
    - Google forms
    - 5 point likert scale (highly irrelevant (1) - highly relevant (5))
    - Consensus if >80% scored 4 or 5 on the level of agreement

Literature search

- 14 articles were included
- "Quality indicators" were divided into 4 categories:
  - **Computer based** tools
    - Electronic prescribing systems
    - CDSS with alerts for inappropriate prescribing
  - **Educational** interventions
    - Education of health care professionals
    - Patient education
  - Medication **review**
    - Based on explicit and implicit criteria
  - **Pharmacist-led interventions**
    - Involved in multidisciplinary team
    - Medication reconciliation on admission and discharge
    - Patient counseling

Delphi

- 3 Delphi rounds 08/2017 - 10/2017
- Experts: 8 geriatricians and 3 clinical pharmacists
- The primary questionnaire counted 67 questions.
- After the third and final round 90% of the questions reached consensus
- The final questionnaire counted 61 questions.

Survey

- The final survey was edited in French and Dutch
- Distributed by email to the head of the geriatric wards form all Belgian hospitals
- Sent 22nd December 2017
- 19/3: 57% response rate (57 hospitals responded)

Characteristics

G-WARD	Mean
Age (years)	31/57: 80 -84 24/57: 85-90

G-WARD 2016	Median	IQR
Length of stay (days)	15,78	[12-17,08]
Number of admissions	1427	[944-2080]
Number of geriatricians (FTE/24 beds)	1,00	[0,8-3]
Number of physicians in training (FTE/24 beds)	1	[0,975-2]
Number of graduated clinical pharmacists (FTE)	0,6	[0,1-0,9]
Number of clinical pharmacists in training (FTE)	0,4	[0,2-1]

Computer based tools

86% (48/56)

- Electronic prescriptions

33% (16/48)

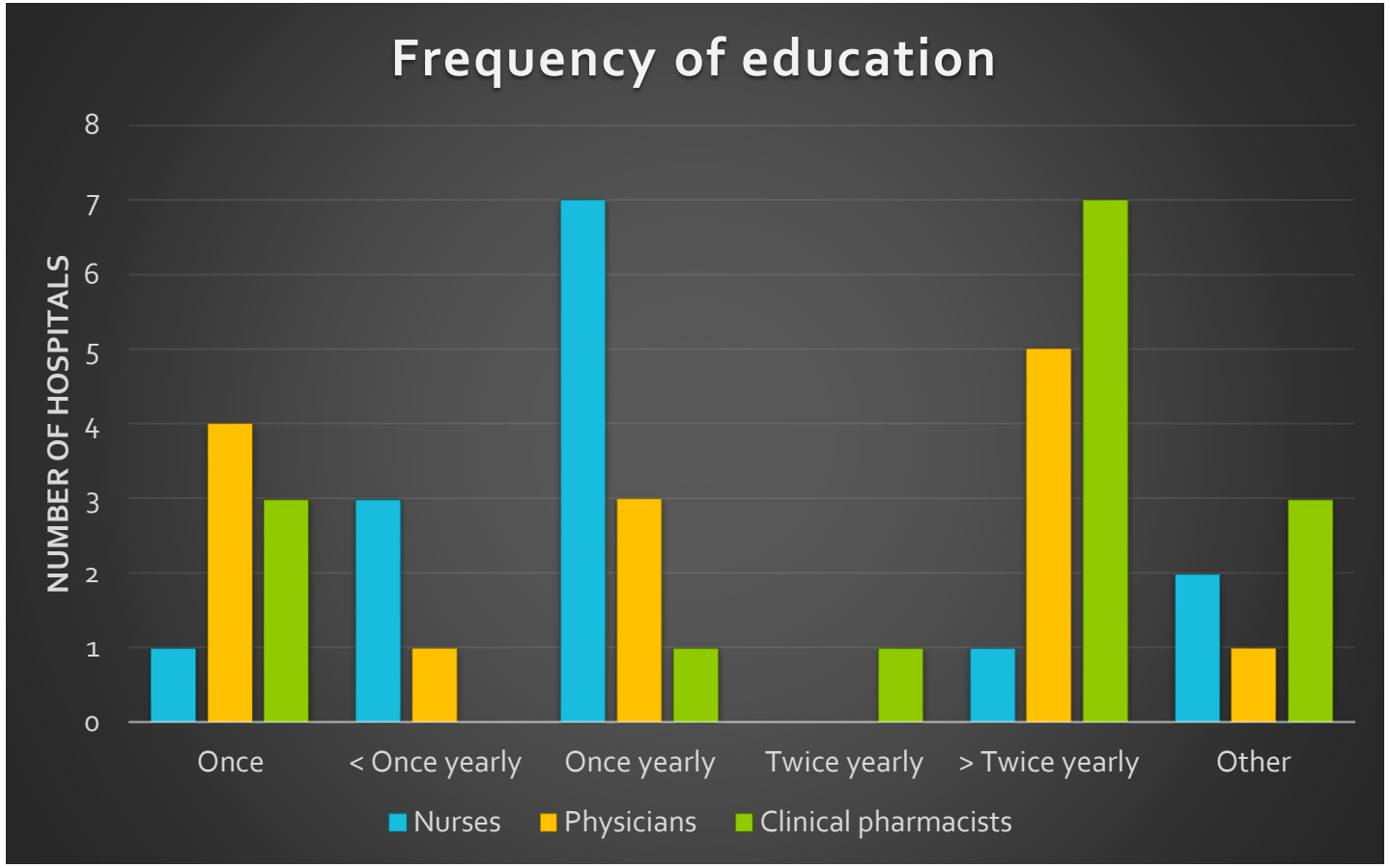
- CPOE + CDSS

19% (3/16)

- CDSS to detect PIP

Education

- Type of education
  - *By e-learning platforms*
  - *By lectures*
  - *By case conferences*
- Number of hospitals
  - *Nurses: 14*
  - *Physicians: 14*
  - *Clinical pharmacists: 15*



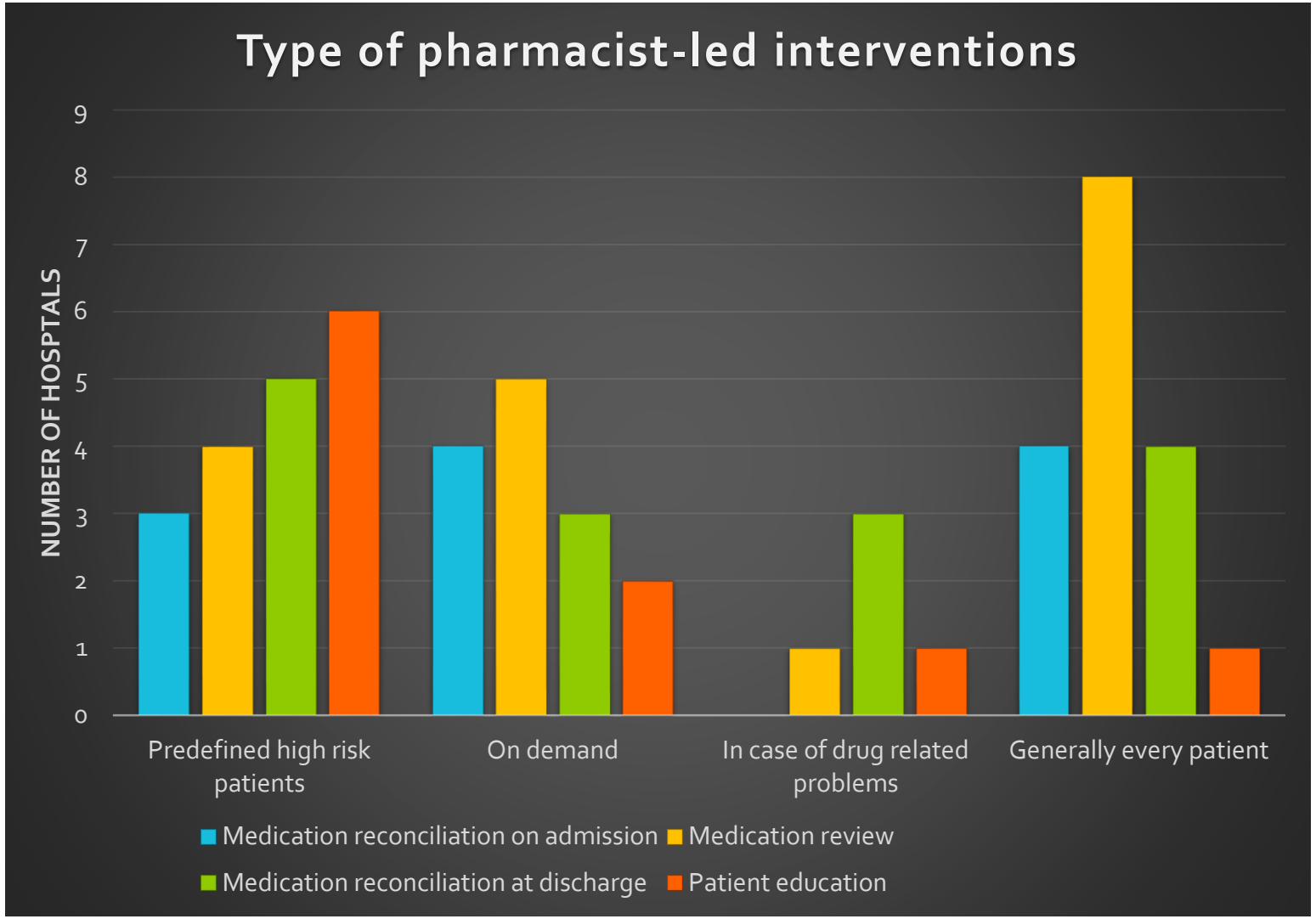
Patient education

- 43 hospitals provide patient education on the G-ward
  - 41 individually
  - 2 trough group sessions
- Which patients?
  - Every patient: 12
  - High risk patients: 10
  - In case of drug related problems: 9
  - In case of therapy modifications: 5
  - Other: 6

Clinical pharmacist on G-ward

- Only in **37%** (21/57) of the hospitals a clinical pharmacist is available for the G-wards
  - Graduated pharmacists: 13
  - Graduated + pharmacists in training: 6
  - Clinical pharmacists in training: 2
- **Availability** of graduated clinical pharmacists
  - Only Back office: 6 hospitals
    - *Ad hoc contact by phone: 6*
    - *Ad hoc contact by mail: 2*
    - *Ad hoc contact through electronic patient record: 4*
  - Front ± Back office: 13 hospitals
    - *Present on the G-ward: 11*
    - *Present at multidisciplinary meetings: 3*
    - *Patients rounds: 6*

Pharmacist interventions



Medication review

- 38/57 hospitals use a **systematic approach** to perform medication reviews
  - In 22 hospitals medication review is performed by a **multidisciplinary team**
    - Physicians (geriatricians ± physicians in training)
    - Clinical pharmacists
    - Nurses
  - 34 use **explicit criteria**
    - Beers list: 8
    - STOPP-START: 30
    - RASP: 4
    - GheOP³S tool : 1

Future perspectives

STRONGER TOGETHER ?

- Importance of a **national strategy** to improve pharmacotherapy in older inpatients (SIMPATHY)

- Recommendation letter to increase implementation of strategies to improve optimal prescribing on the geriatric wards
  - Implementation of clinical pharmacy services in multidisciplinary teams on G-wards
  - Implementation of CDSS for potentially inappropriate prescriptions
  - …

McIntosh J, et al. (2018) A case study of polypharmacy management in nine European countries: Implications for change management and implementation. PLoS ONE 13(4)

Questions?

Thank you for the attention!