



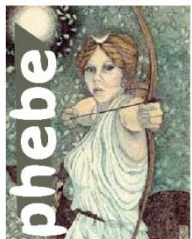
Medicines use in nursing homes – A Belgian survey

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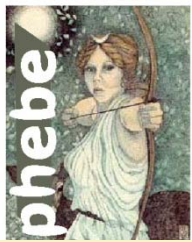
Université catholique de Louvain

EAMA, Sion, January 2008



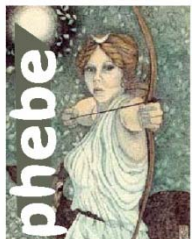
Prescribing in Homes for the Elderly in Belgium

Initiated and granted by the Belgian Research Centre of Health Care
A collaboration between the Universities of Gent, Antwerpen and Louvain



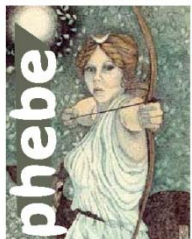
Background

- Most industrialized countries have a system of nursing homes for the care of institutionalized elderly.
- Belgium has 10.4 million inhabitants, 17% older than 65 and 1.5% living in nursing homes.
- The nursing homes are community-based, served by community pharmacies and GPs.
- The costs of care and of pharmaceutical care are rising in these institutions with concerns about polypharmacy.
- The Belgian government commissioned a healthcare services research study to a consortium of universities to investigate the situation.



Top 100 des médicaments (remboursés) utilisés dans les maisons de repos et les maisons de repos et de soins de Belgique, basé sur les DDD (daily defined dose) calculées (données de Pharmanet)

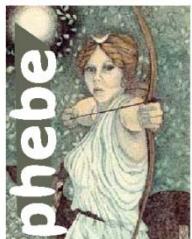
	ATC	Non-proprietary name	DDD	Health insurance cost (€)	Out-of-pocket (€)
1	C01DX12	MOLSIDOMINE	10346605	3666181	843581
2	A02BC01	OMEPRAZOLE	6580042	4061590	908280
3	C03CA01	FUROSEMIDE	5349921	580875	264653
4	C01DA02	NITROGLYCERINE	5229171	2196152	514432
5	C08CA01	AMLODIPINE	4701052	2285735	531982
6	N06AB04	CITALOPRAM	3980098	2759236	1055847
7	C09AA03	LISINOPRIL	3598074	732684	224749
8	A02BA02	RANITIDINE	2928329	1465731	351167
9	R05CB01	ACETYLCYSTEINE	2769150	328826	395995
10	C03CA02	BUMETANIDE	2613340	314634	72914



Objectives

To evaluate the quality of use of medicines
in Belgian nursing homes

To evaluate the quality of prescribing and
to explore the relationships with organisational
characteristics



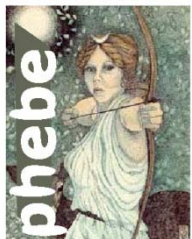
Interactive questions

- Who regularly works in a NH?
- Who has frequent direct contacts with HCPs working in NHs?

- Who has ever seen how medicines are prescribed in a NH?
- Who has ever seen how medicines are prepared and administered in a NH?

Quality of prescribing in NHs

What are the main issues, in your opinion?

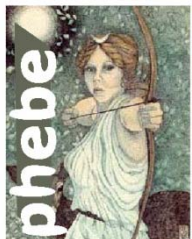


Setting

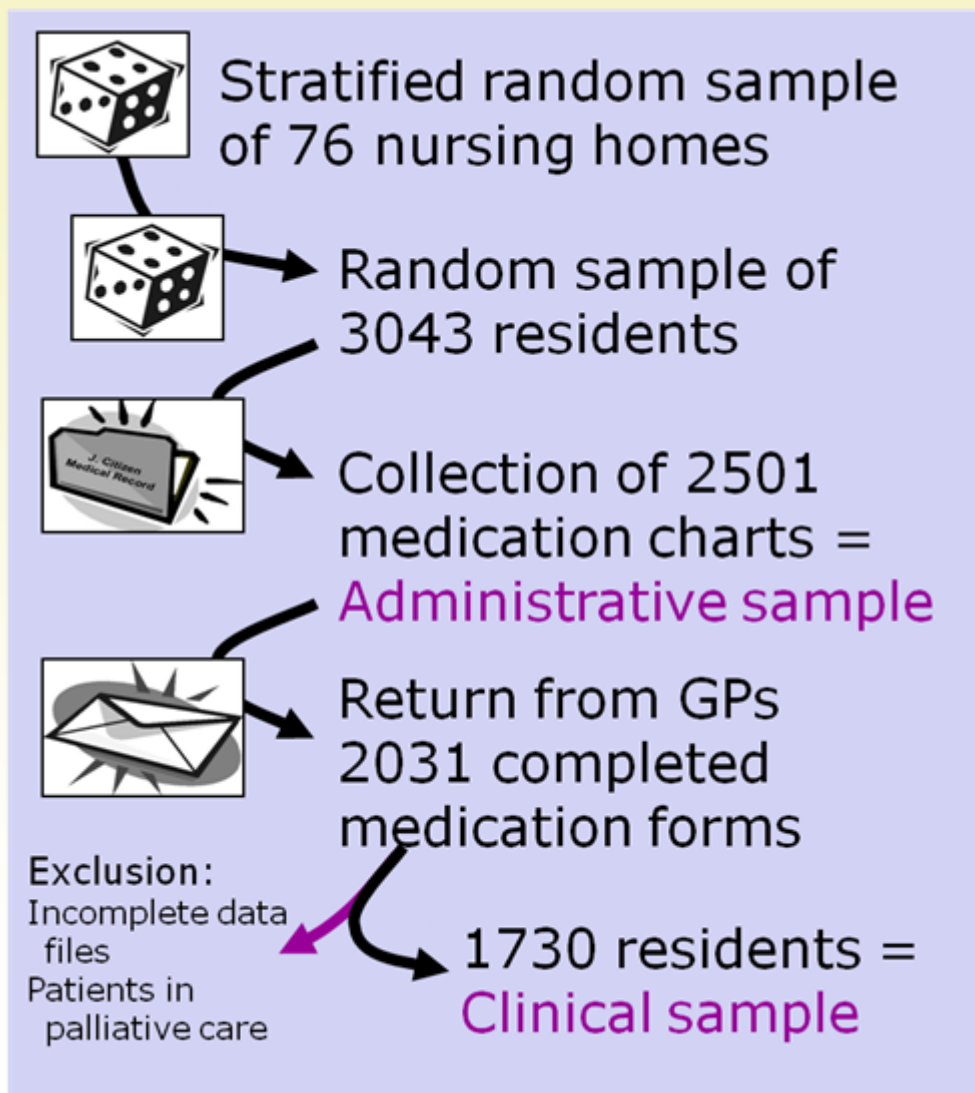
- 3 Belgian provinces (2 Dutch- & 1 French-speaking)
- NHs eligible for selection if:
 - at least 30 beds
 - certification for high intensity care beds
- Stratified random sample:
 - 4 strata based on size (≤ 90 beds / > 90 beds) & type (public/private)



76 nursing homes



Method – sampling procedure





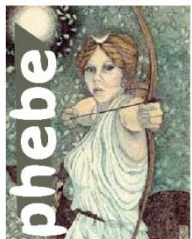
Method – Outcome measures

1. Quality of medication management

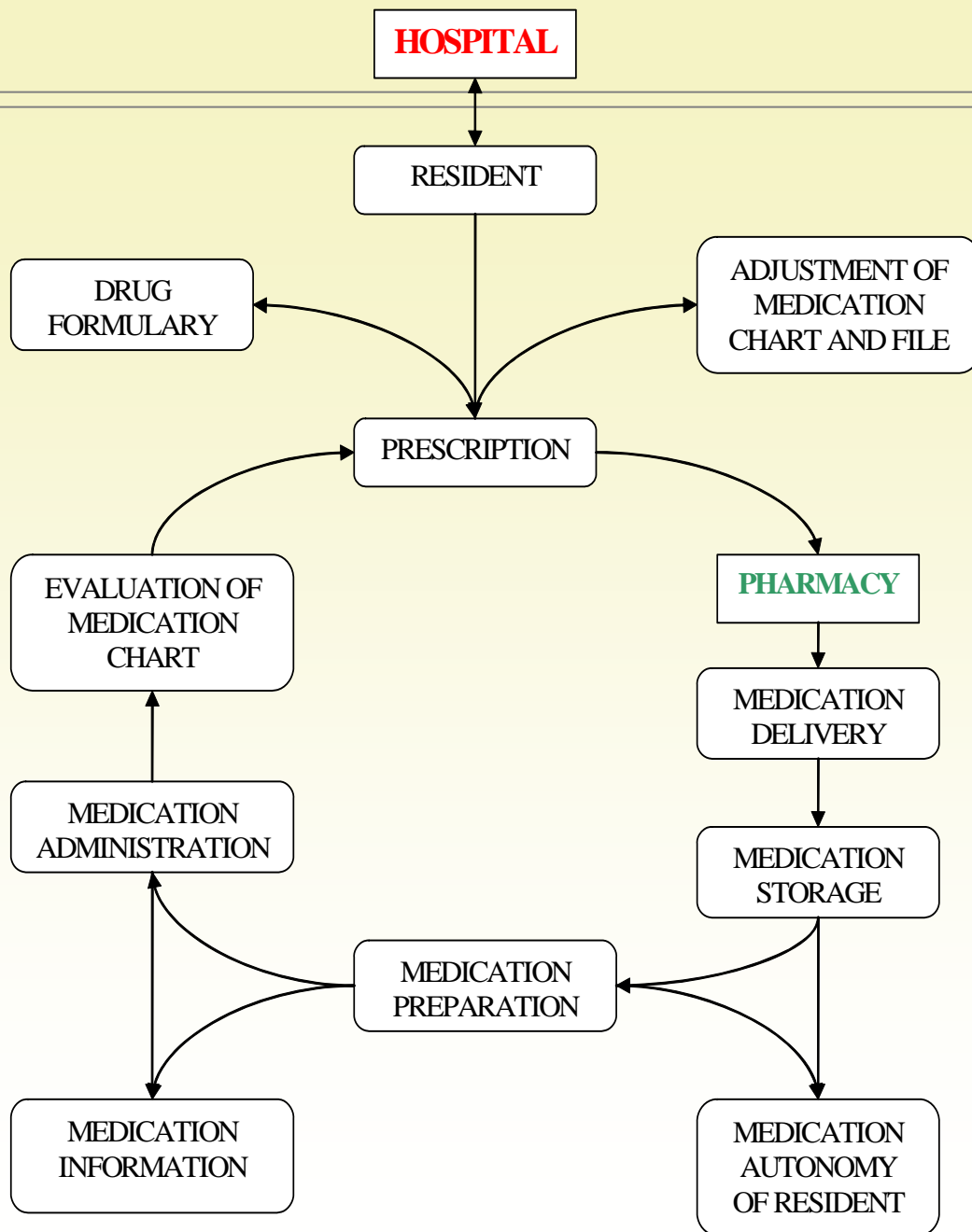
- At the level of NH (n=75) and NH units
- Structured questionnaires for NH directors and 1-2 head nurses
- Results transformed in a “quality score”

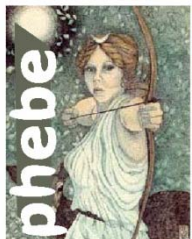
2. Quality of prescribing

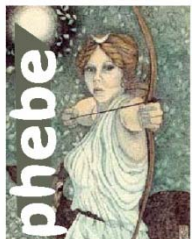
- At the level of patients (n=2501)
- Sources of information: administrative, prescription and clinical data
- 3 sets of quality indicators used ; sumscore calculated



1.





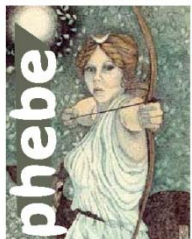


1.

Quality score for medication management

Development of a quality scoring system of the medication management system:

- Quality scores were developed for each topic of the questionnaire
- A team of pharmacists made a proposal
- An expert panel discussed this proposal
- Decisions were made by consensus

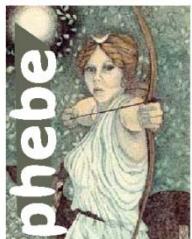


1.

Quality score for medication management

Example: Use of a therapeutic formulary

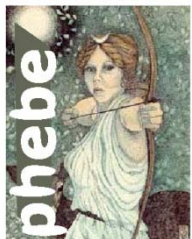
Formulary		
Formulary present	Yes	0
	No	-2
New GP informed about formulary	Systematically	0
	Sporadically	-1
	Never	-3
GP can prescribe non-formulary drugs without motivating	Yes	0
	No	+2
Nurse points GP at prescribing non-formulary drugs	Systematically	+3
	Sporadically	+1
	Never	0
Formulary visibly present at prescribing place	Yes	0
	No	-2
Formulary systematically (at every prescription) presented at GP	Yes, to all GPs	+3
	Yes, only to GPs receptive to it	+1
	No	0



1.

Quality score for medication management

Example: Administration of medicines



2.

Method – quality of prescribing

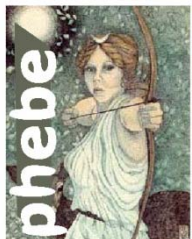
Measures used

3 sets of validated indicators, specific for elderly patients:

- BEERS criteria
- ACOVE criteria specific to “underuse”
- BEDNURS criteria (Bergen District Nursing Home Study)

Completed with 2 other approaches of quality of prescribing:

- Chronic use of benzodiazepines
- Belgian medication with low benefit/risk ratio

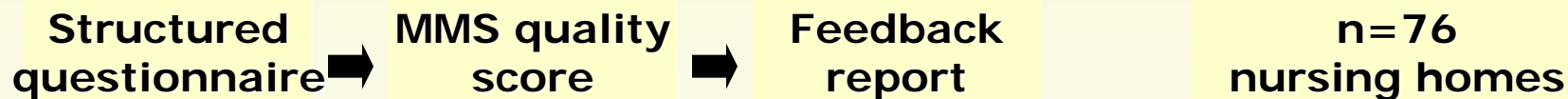


Method – summary

Data collection

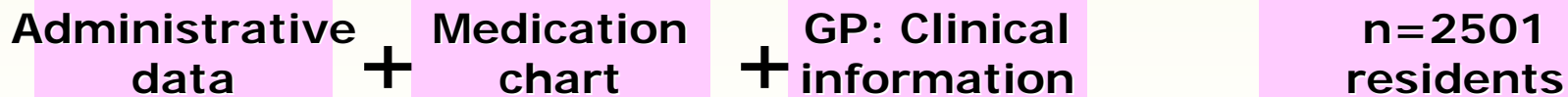
At institutional level (interview director and head nurses)

Quality of the Medication Management System (MMS)



At resident level (using BEERS, ACOVE, BEDNURS)

Quality problems of prescribing





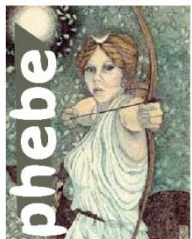
Results - sample

1. NHs

76 NHs participated.

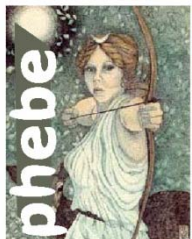
Table: Comparison of basic characteristics of the sampled nursing homes with the population of Belgian nursing homes

→ The sample of nursing homes can be considered representative for the population of Belgian nursing homes.



Results – quality of medication management

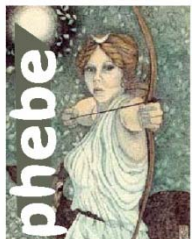
- Quality coordinator designated in 84% of NHs
 - Quality book and written procedures in 82%
- Formulary in 95% of NHs
 - Used in 64% of NHs; non binding in 92%
- Prescriptions with computers in 89% of NHs
 - Computerised prescribing system in 1/3 of NHs
- No generic names in 71% of prescriptions
- Medicines ordered without prescription in 70% of NHs



Results – quality of medication management

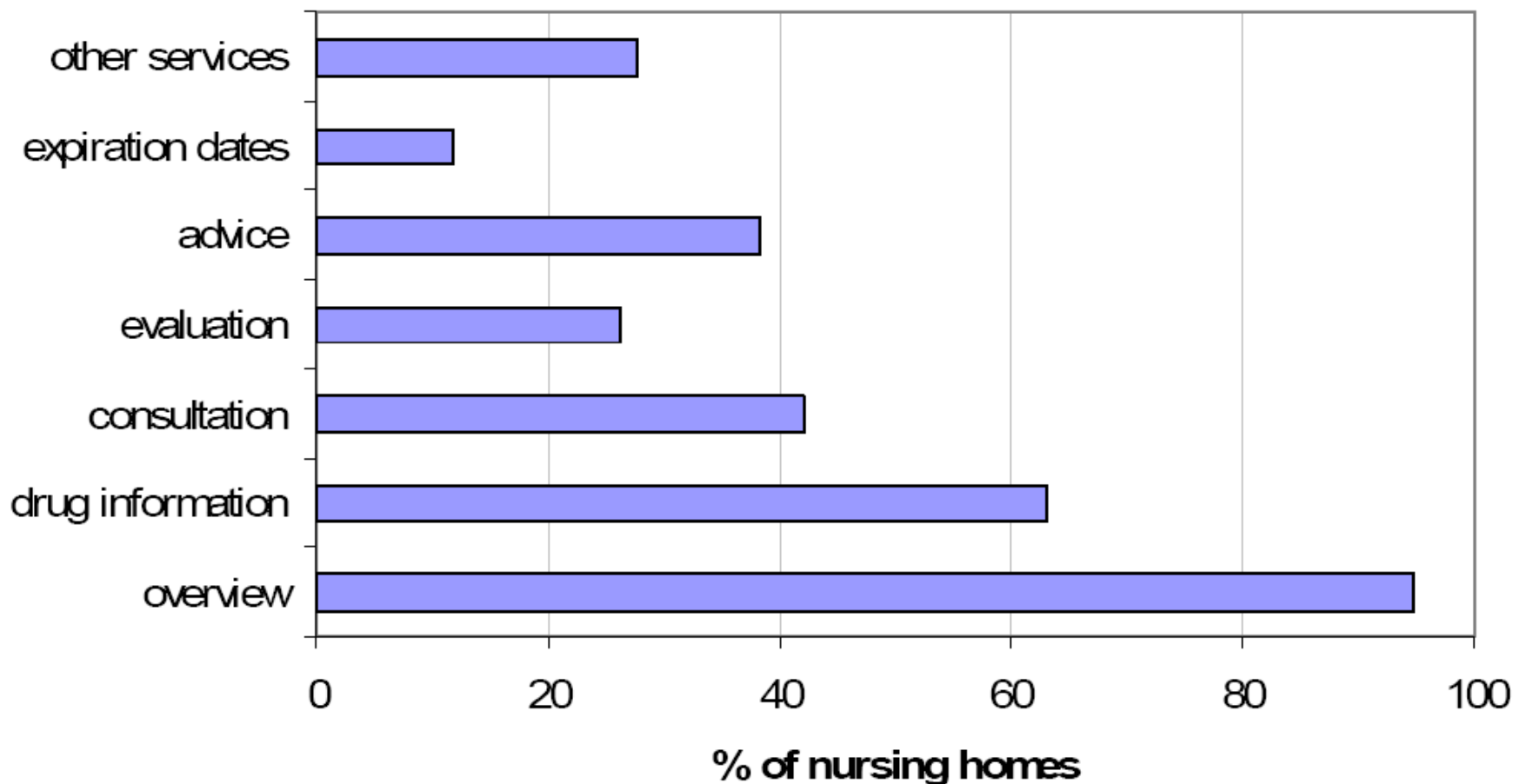
- Medications were mainly purchased from community pharmacies (82.9%)

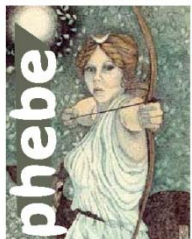
→ Only 50% of the pharmacists delivered medications as described by law: packaged per resident, with label on each box



Results – quality of medication management

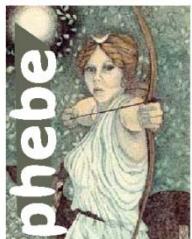
Figure 3.5: Services provided by the pharmacy



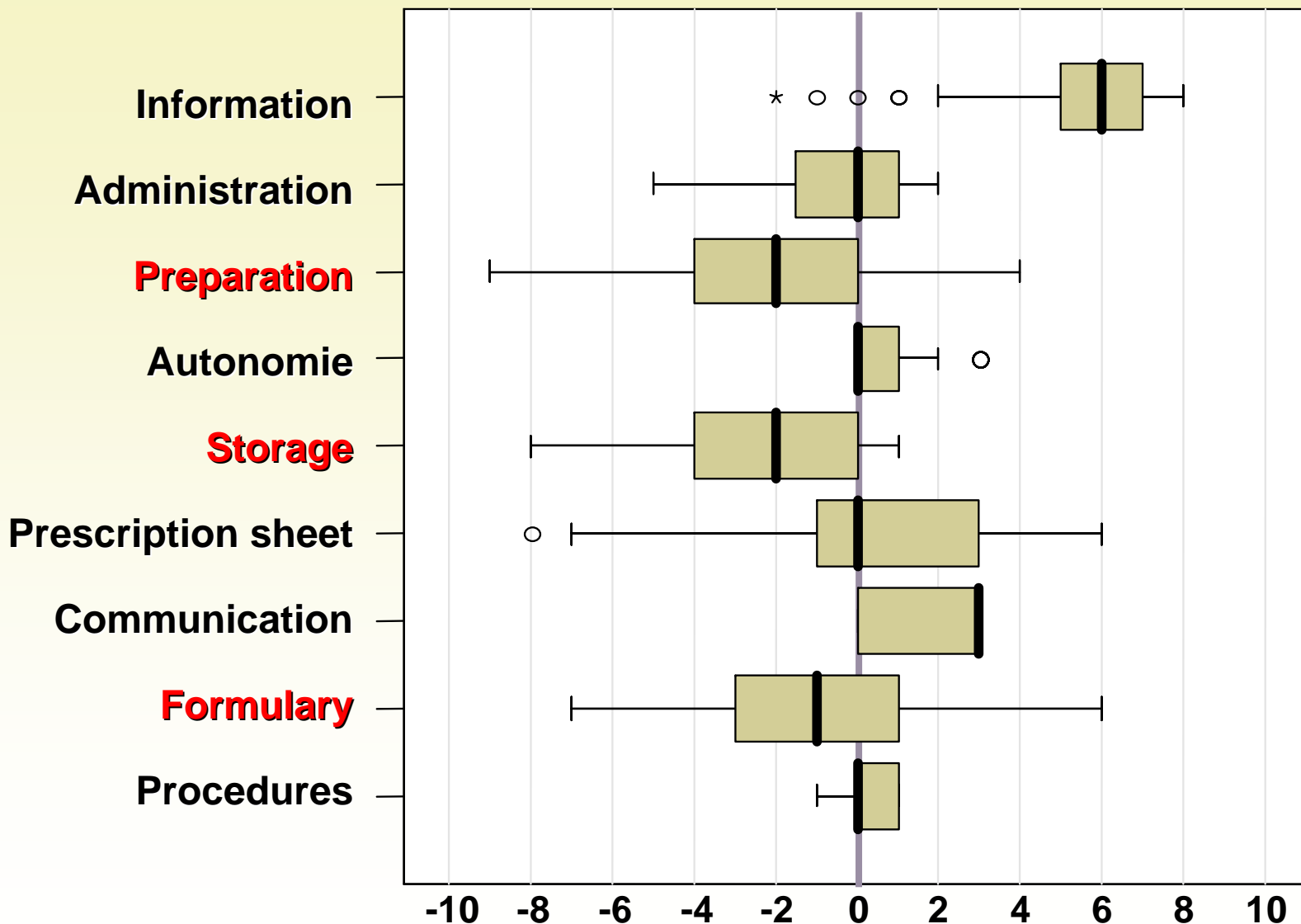


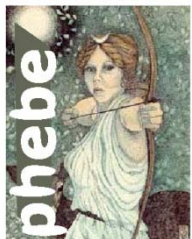
Results – quality of medication management

- Prescription/OTC medicines in residents' room: forbidden in 58% / 30% of NHs
- Several legal requirements in the preparation and administration of medicines were not met
 - Room with medicines unlocked
 - Medicines prepared more than 24hrs before administration
 - Preparation / administration by caring aids
 - Medicines removed from blisters upon preparation
- Crushing medicines: very frequent – information looked for in 21% of cases.



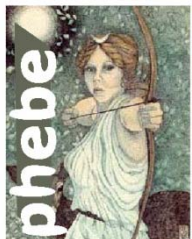
Quality scores at the level of the ward





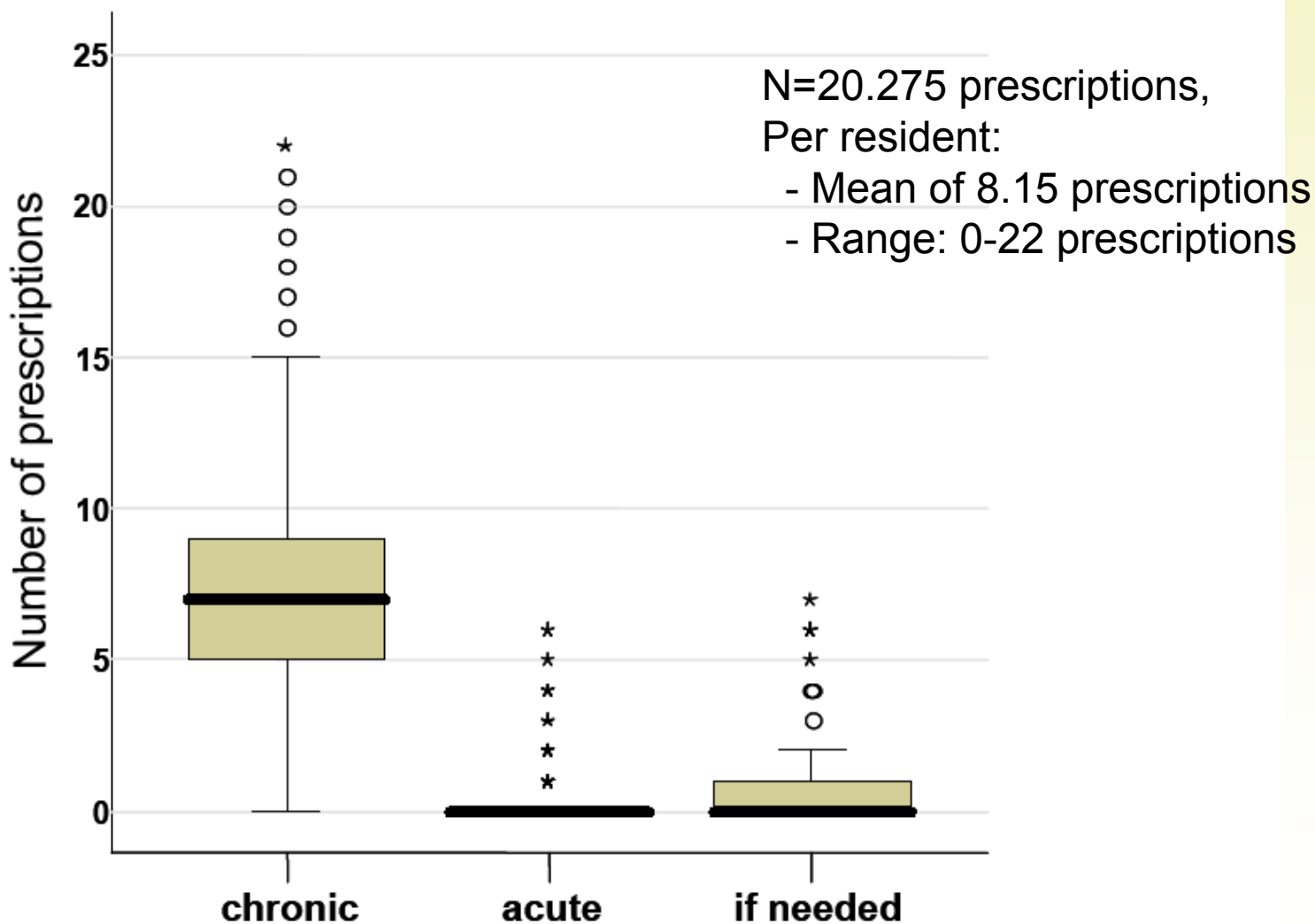
2. NH residents

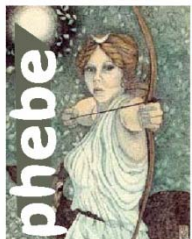
- n=2510
- Mean age 84.8 y – 77% females
- Mean nb of clinical problems: 2.6 (0-12)
- 48% of residents: Katz Cd (full dependency and dement)



Results – quality of prescribing

Figure 3.21: Number of medications per patient for chronic, acute, and “as needed” medication (N=2510)





Results – quality of prescribing

Figure 3.31: Consumption of chronic medication according to age

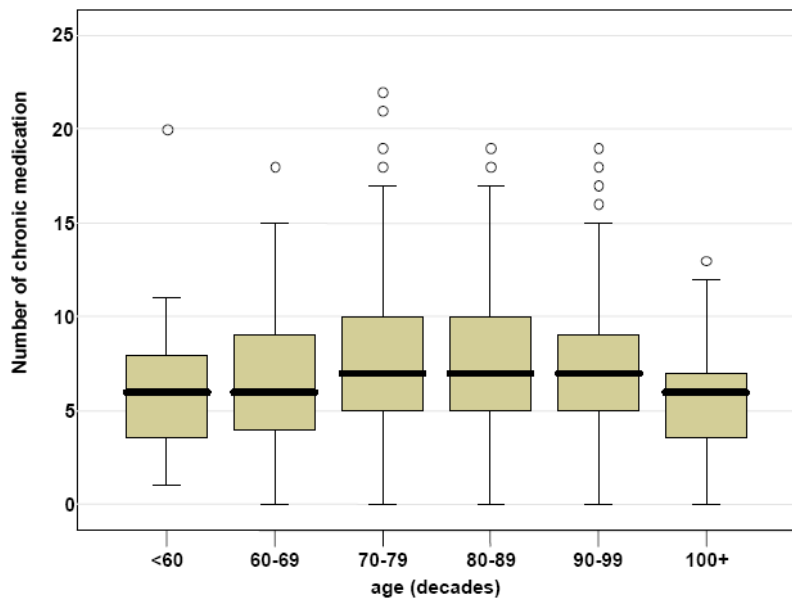
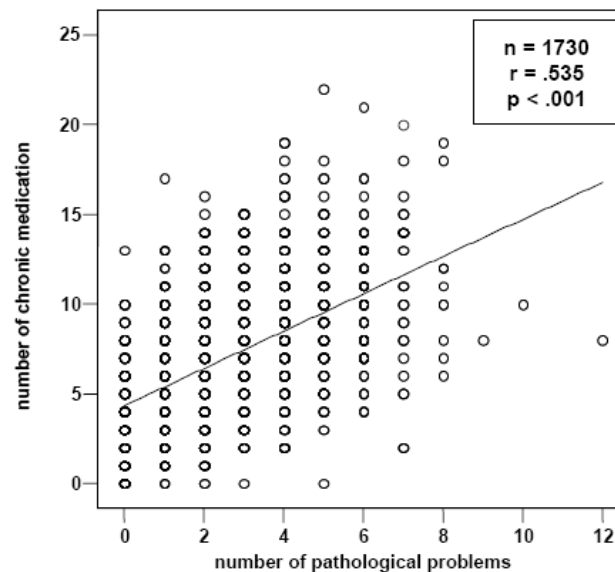
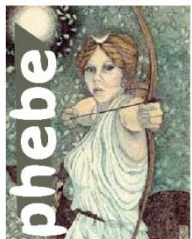
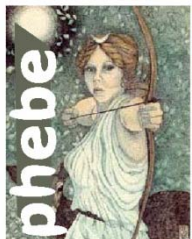


Figure 3.34: Relationship between polypathology and chronic medication

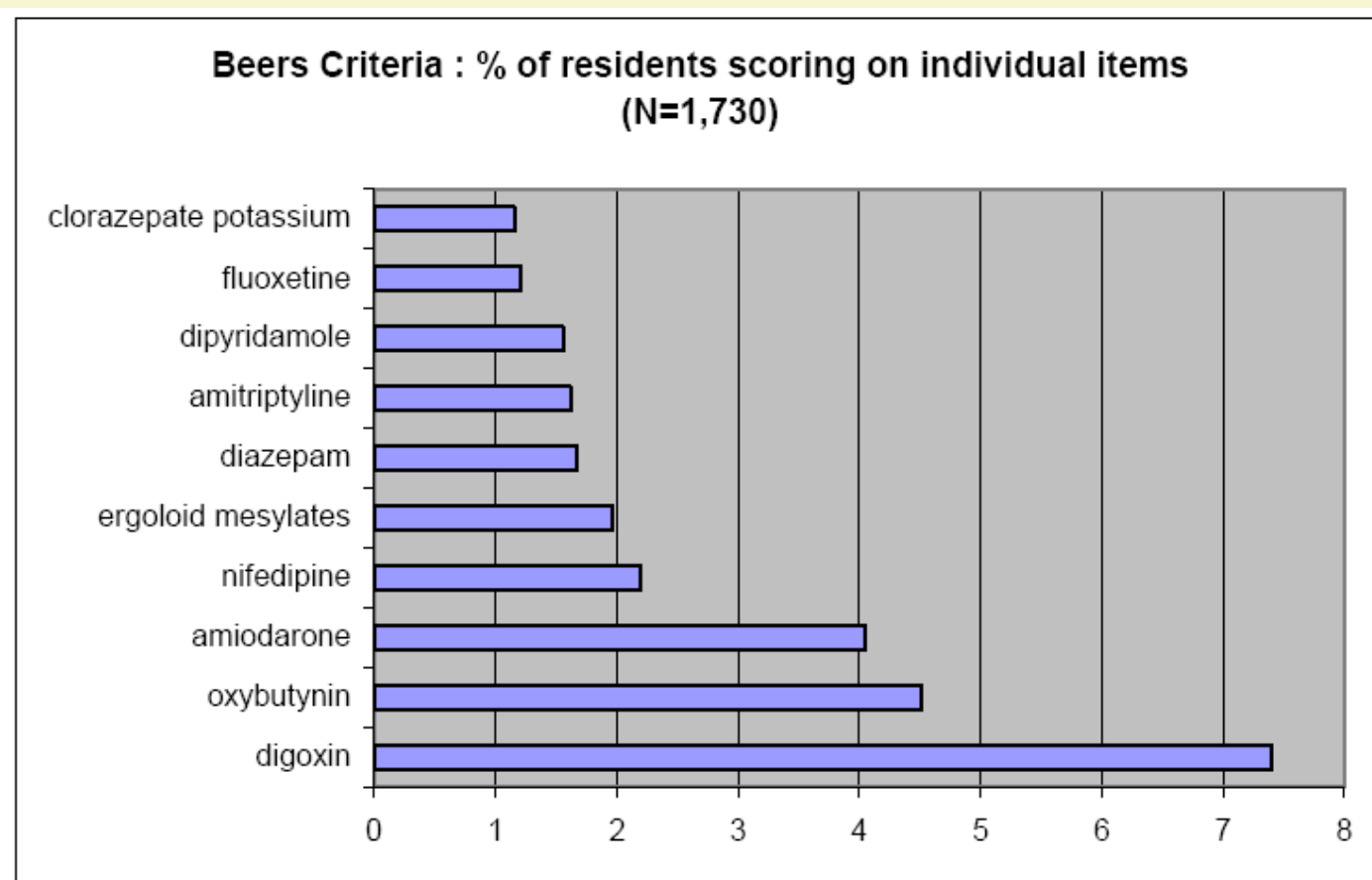


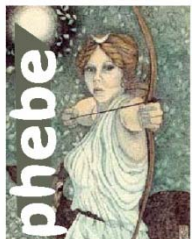




Results – quality of prescribing

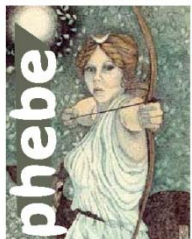
Beers criteria





Results – quality of prescribing

ACOVE criteria

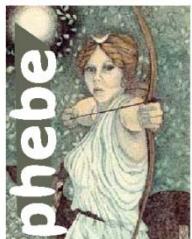


Results – quality of prescribing

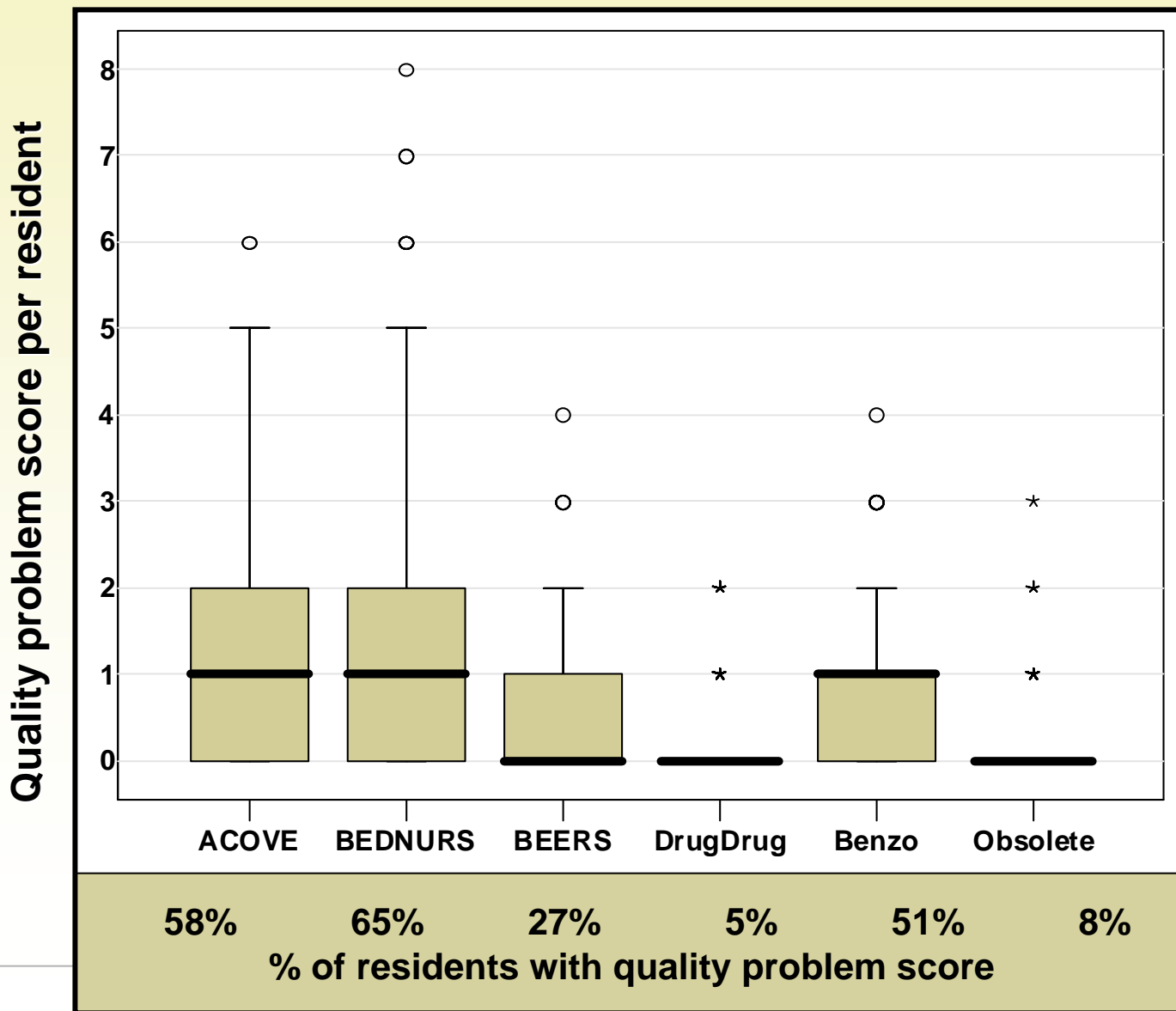
BEDNURS criteria

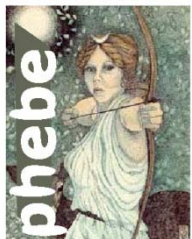
% of patients prescribed:

- Several psychotropic drugs: 25%
- Antipsychotics, chronic use: 12%
- ACEI + potassium-sparing diuretic: 11%



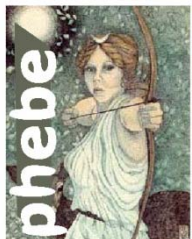
Results – quality of prescribing





Results – quality of prescribing

- Decreased quality of prescribing related to:
 - Low number of residents per prescriber
 - Hainaut Province
- Improved quality of prescribing related to:
 - High activity of the coordinator
 - More intensive use of the formulary
 - Increased input of the dispensing pharmacist



Feedback for GPs

IDRVT BEWONER HA **M** Geb Jaar Lfd

RVT	BEW
A002	B01
A002	B02
A002	B03
A002	B04
A002	B05
A002	B06
A002	B07
A002	B08
A002	B09
▶ A002	B10
A002	B11
A002	B12
A002	B13
A002	B14
A002	B15
A002	B16
A002	B17
A002	B18
A002	B19
A002	B20
A002	B21
A002	B22
A002	B23
A002	B24
A002	B25
A002	B26
A002	B27

C FOLAVIT 4,0 MG TABL 40 X 4,0 MG <= Standaard MppNm<= MAG. (

C CRISPERDAL COMP 60 X 2MG

C LAXAVIT MICRO ENEMA INJ 3X12ML <= LAXAVIT MICRO ENEMA

B03BB01
N05AX08
A06AG10

Post Myocardinfarct
Constipatie
Zeer mager
Dementie
Pall(1): niet fatale diagn

ACOVE **AND** BEDNURSE **AND** BEERS **AND** DRUG-DRUG

1 Hartischemie zonder ASA 34 cron gebruik van antiPsychotica

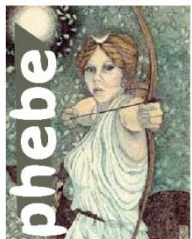
9 PostInfarct zonder Betablokk

CAT OPM



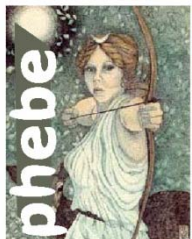
- Strengths
 - Large and representative sample
 - The whole process of use of medicines was evaluated

- Weaknesses
 - Quality criteria
 - Validity of scores?
 - Non evaluated: dosage, indication, duration, ...
 - Validity of clinical data not assessed
 - No evaluation of impact on clinical outcomes or quality of life



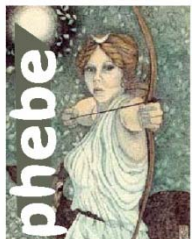
Discussion

- Polymedication is frequent.
- National effort to promote the use of therapeutic formularies, but better use needed.
- Nursing staff active to prevent errors, but low support from diverse information sources and from pharmacists.
- Quality of prescribing: potential problems in most residents.
- Limited involvement of pharmacists in quality activities.



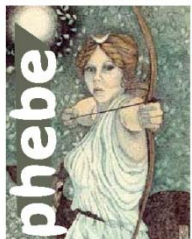
Discussion

- Perspectives for improvement?:
 - Training nursing staff / prescribers
 - New procedures, and incentives to follow them
 - Patient empowerment?
 - Pharmaceutical care activities?



Similar data in the literature?

- Data on the quality of use of medicines in NHs
 - Data on quality of prescribing:
 - Quantity: ++
 - Quality: from +/- to ++
 - Data on the quality of medication management in general:
 - Quantity: - / +/-

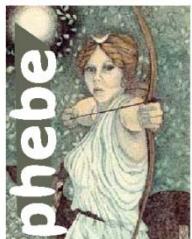


Similar data in the literature?

Medicines use and ADEs in NHs (Gurwitz et al., Am J Med 2000; 109: 87-94)

- Prospective cohort study, 18 NHs (Masachusetts), 1 year
 - ADEs detected by stimulated self-report by NH staff and by periodic review of residents' records by trained nurse and pharmacist investigators; then validated by a physician
- Results:
 - 546 ADEs; 51% preventable
 - At what stages of medicines use did errors occurred?
 - Ordering* 68% + monitoring (70%)
 - Administration 3%
 - Transcription 0.7%
 - Dispensing 0.5%

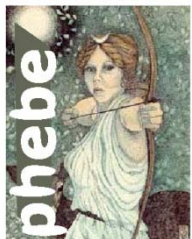
* mainly: wrong dose, drug interaction, wrong choice



Similar data in the literature?

Inappropriate prescribing in NHs – a few examples (1/3)

- Briesacher, Arch Intern Med 2005;165:1280-5
 - Retrospective study, 2.5 million US NH residents
 - 27.7% were prescribed an antipsychotic drug
 - 58.2% of prescriptions not in accordance with NH prescribing guidelines (mainly lack of indication and too high doses)



Similar data in the literature?

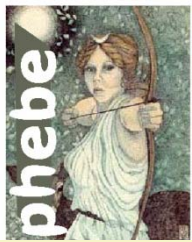
Inappropriate prescribing in NHs – a few examples (2/3)

- Fahey, BMJ 2003; 326:580-4
 - Controlled observational study, 172 NH residents + 526 community-dwelling elderly people (Bristol, UK)

What this study adds

Elderly people in one UK city receive inadequate care when judged against explicit quality indicators

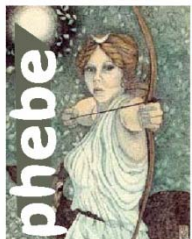
Those living in nursing homes receive poorer care than those living at home in terms of underuse of beneficial drugs, poor monitoring of chronic disease, and overuse of inappropriate or unnecessary drugs



Similar data in the literature?

Inappropriate prescribing in NHs – a few examples (3/3)

- Finkers et al., J Clin Pharm Ther 2007;32:469-76
 - 5 Dutch NHs, 91 polypharmacy patients (≥ 9 medicines)
 - Team medication review: 1 hospital pharmacist + the patient's NH physician; follow-up meeting 6 wks later
 - Mean of 3.5 problems identified / patient
 - 62%: unclear or not confirmed indication, or need for review
- At follow-up:
 - mean of 1.7 problems/ patient has been solved
 - Significant decrease in the number of drugs per patient



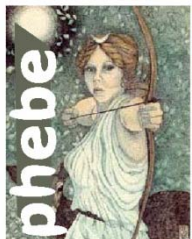
Similar data in the literature?

- Implementation of therapeutic formularies in NHs
 - Very limited international data
 - Aims:
 - Increased safety
 - Disposing of a list with the cheapest medications
 - Guide on evidence-based prescribing behaviour
 - Actual impact on quality?



Similar data in the literature?

- Approaches for optimisation
 - Restrictive prescribing rules, education, multidisciplinary/geriatric approaches, pharmaceutical care, computerised prescribing,...
- The Australian model (Roughead et al., Drugs Ageing 2003; 20:643-53)
 - 1991-2002: development of services supporting appropriate medications management, eg:
 - Federally funded medication review services / CPS
 - Medication advisory committees
 - 50% of Australian pharmacies registered to provide services
 - Impact:
 - ↓ use of BZD, laxatives, NSAIDs, antacids
 - ↓ Error rates during medication administration



Final thoughts

- The quality of prescribing in NHs is an important issue but...
...other areas of medicines use also need to be evaluated
... as optimal therapeutic outcomes will only occur if the whole process of medicines use is optimised
- Close collaboration with nurses is essential
 - And spending a day or half a day « shadowing » them would certainly be very informative to prescribers
- And of course... it is not because the patient is in a NH that he can't give his/her point-of-view!