



Family Medicine
for English language students
of Medical University of Lodz

Seminar 12

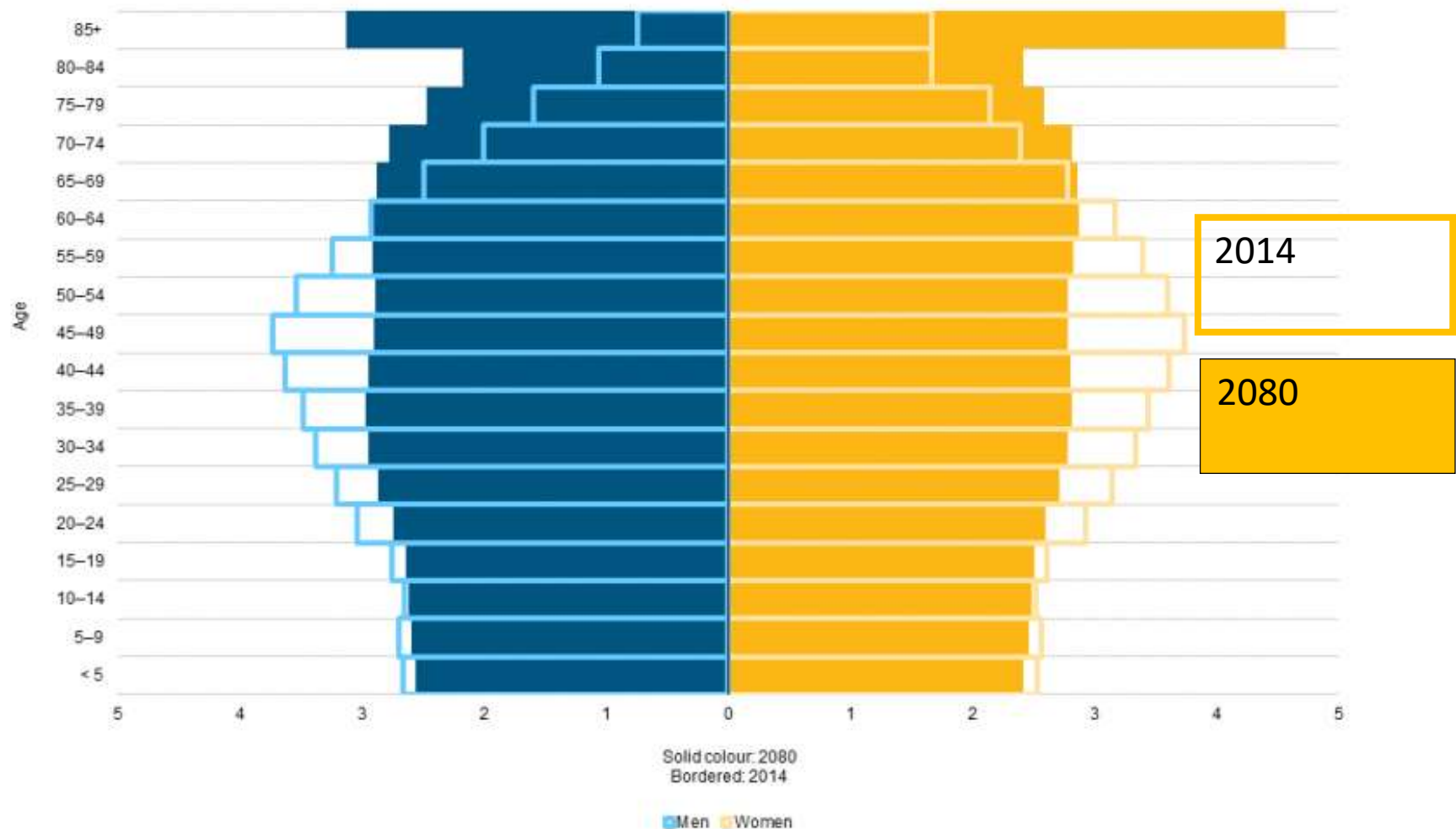
Elderly care



Zakład Medycyny Rodzinnej
Uniwersytetu Medycznego
w Łodzi

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Europe is facing demographic challenge



Old vs young: major differences



Anna Dymna at different ages



Frailty syndrome

The frailty phenotype defines frailty as a distinct clinical syndrome meeting 3 or more of 5 phenotypic criteria:

1. Weakness
2. Slowness
3. Low level of physical activity
4. Self-reported exhaustion
5. Unintentional weight loss

Frailty syndrome pathogenesis

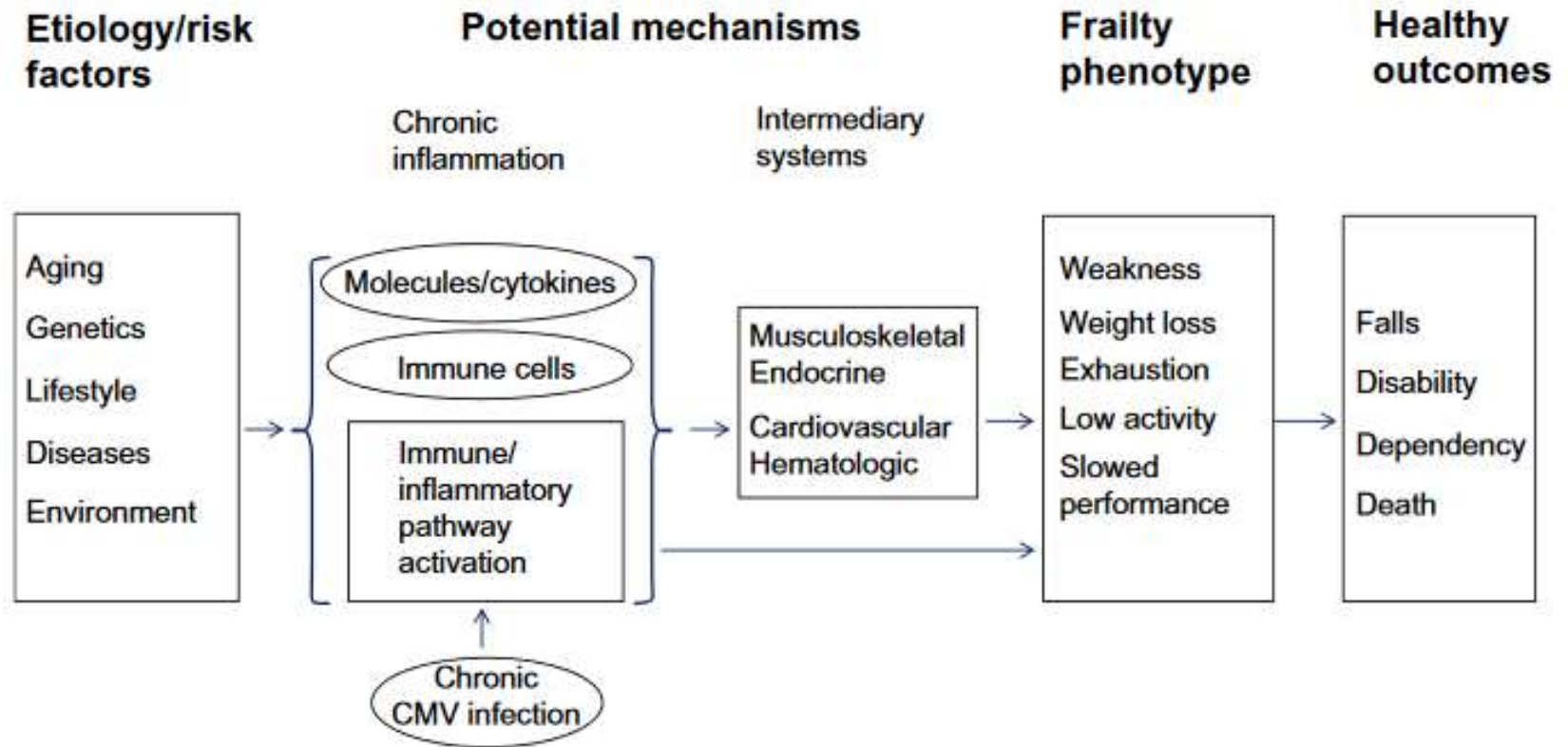


Figure 2 Pathogenesis of the frailty syndrome: current understanding of potential underlying mechanisms and hypothetical modal pathways leading to frailty. **Abbreviation:** CMV, Cytomegalovirus.

Geriatric syndromes (1)

Hypomobility Syndrome, Decondition and Muscular Weakness

The inability or decreased ability to move can be based on:

- neurological cause - ictus,
- psychological cause - depression, anxiety, fear of falling,
- somatic cause - shortness of breath, fatigue, pain, claudication,
- influence of the environment - unsuitable housing (on the first floor without elevator), bad shoes.

Movement reduction leads to a reduction of skeletal muscle (atrophy), which in turn worsens the ability of individual mobility.

In case of total loss of mobility is a risk of pressure sores, ulcers, urinary incontinence etc.

6 The effect of requiring social assistance, from cleaning and shopping to personal care and feeding in the most difficult cases.

Geriatric syndromes (2)

Instability Syndrome and Falls

Instability is based on the inability of correct body position in space and movement, and results in falls. Falls are a cause of other diseases (fractures, impairment of consciousness, bleeding in the CNS).

These problems are often based on:

- impaired vision
- vestibular system disorders
- muscular proprioception disorders
- orthostatic hypotension, often caused by drugs

Fear of falling leads to hypomobility (vicious circle).

7 The falls happen most often at home, 1/3 otherwise healthy people over age 65 fall at home at least once per a year.

Geriatric syndromes (3)

Anorexia and Malnutrition Syndrome

Eating disorder is based on:

- psychiatric disorder (dementia, depression);
- poverty (only one-sided diet).

Malnutrition leads to worsening of the disease, muscle atrophy, impaired wound healing, slow healing (prolongation of hospitalization), increasing the number of complications and mortality and morbidity.

Right dietary protein intake level: basic income for an adult - 0.8 g/kg/day in age should rise to at least 1.3 g/kg/day in order to protect muscle mass of body.

Geriatric syndromes (4)

Dehydration

Dehydration is common in the elderly because older people do not feel thirsty physiologically.

It may also be caused by psychological factors - depression or dementia.

Dehydration is a frequent cause of decompensation of chronic disease and subsequent hospitalization.

Geriatric syndromes (5)

Incontinence Syndrome

Incontinence is prevalent in up to 30% of people over 65 years.

Because of its frequency incontinence is a not only medical but also socio-economic problem (for the high expenditure on incontinence aids).

In result it leads to the loss of social life (they prefer to stay at home), and other complications as hypomobility.

Geriatric syndromes (6)

Other Syndromes

- Cognitive deficit syndrome, impaired memory and behavioral disorders.
- Combined sensory deficit syndrome - it is mainly a failure of vision and hearing. In the case of sight contributes to impaired orientation in space of instability and increased risk of falls and other accidents. The deterioration of hearing (without treatment) can cause social isolation.
- Maladaptation syndrome - poor adaptation to changing environments.

Pharmacotherapy in the elderly

Changes in Pharmacokinetics

Absorption Decrease

- There is pH increase in stomach, atrophy of villi and mucous in gut (decrease resorptive area), decrease in blood flow and motility in the GI tract. Overall, this leads to a slower onset of action of drugs administered orally.

Distribution

- There is physiological decrease of total body water, it can be enhanced by dehydration

Decreased Metabolization and Excretion

- Decreased glomerular filtration, renal clearance, tubular secretion, renal hypoperfusion → aminoglycosides, lithium, digoxin, cimetidine, allopurinol, a contrast agent.

Pharmacotherapy in the elderly

Changes in Pharmacodynamics

- increased number of receptors or sensitivity to drugs (e.g. warfarin)
- increased sensitivity to adverse effects of digoxin
- increased CNS sensitivity to benzodiazepines, morphine, which cause sedation, delirium, depression, or even at therapeutic doses
- beta receptor numbness - reduced effectiveness of β -blockers

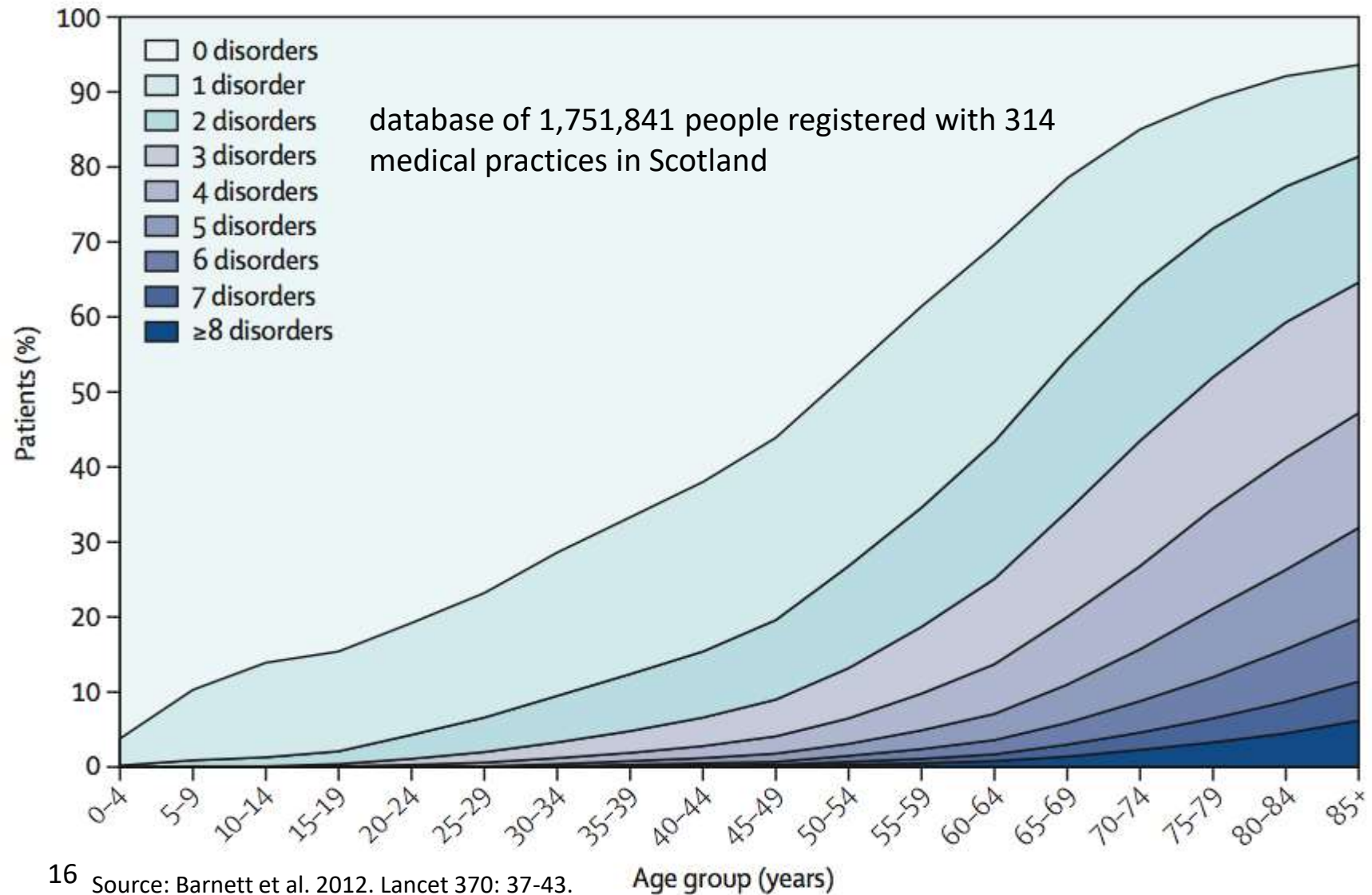
Adverse Effects and Drug Interactions

- Side effects of drugs cause up to 20% of deaths in the elderly
- Typical side effects in the elderly are:
 - orthostatic hypotension (syncope, falls)
 - diarrhea, constipation
 - sedation, delirium, confusion

Activities of daily living (ADL)

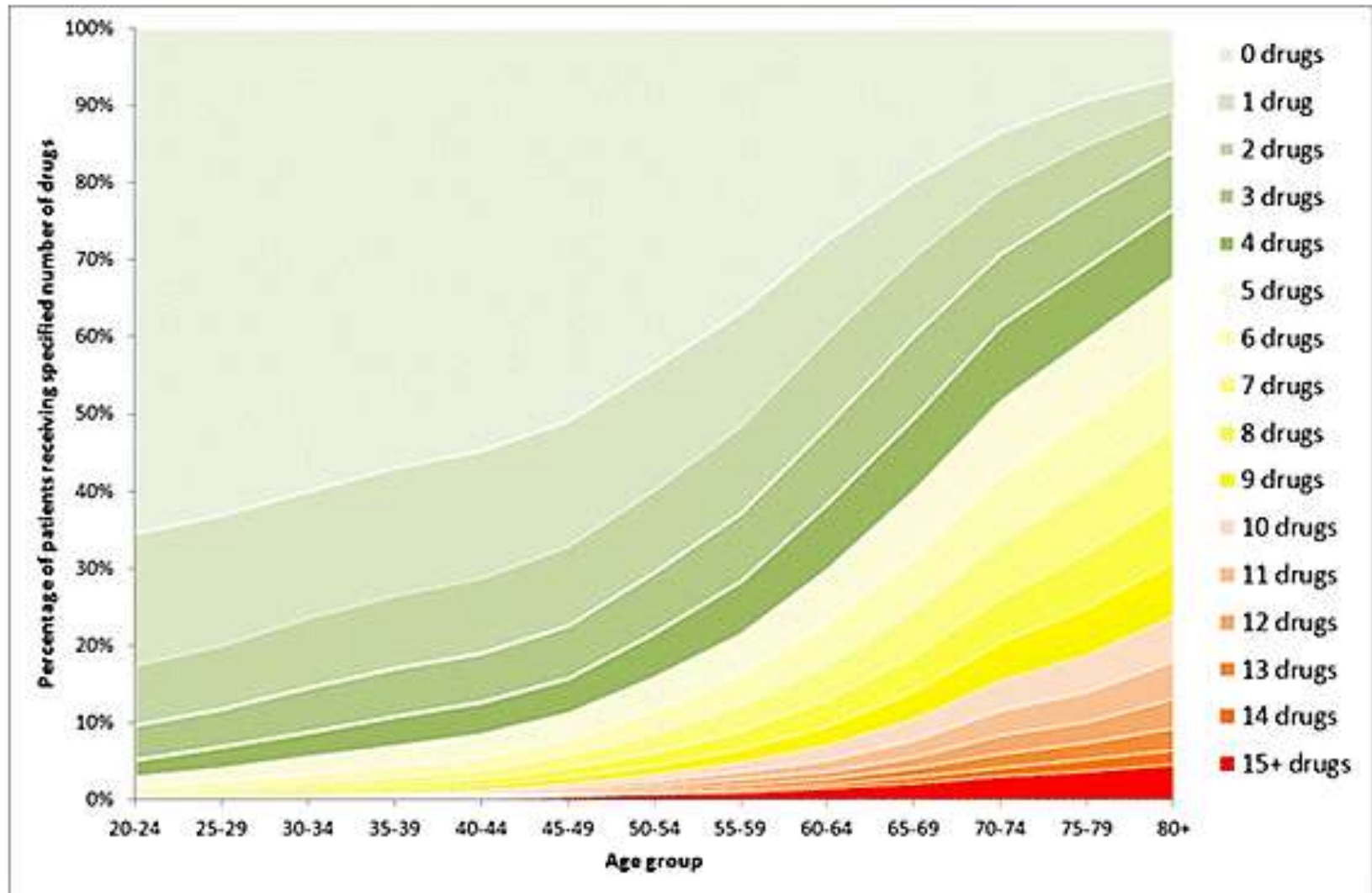
1. Bathing / showering
2. Personal hygiene and grooming (including brushing / combing / styling hair)
3. Dressing
4. Toilet hygiene (getting to the toilet, cleaning oneself, etc.)
5. Functional mobility, often referred to as "transferring", as measured by the ability to walk, get in and out of bed, and get into and out of a chair
Self-feeding (not including cooking or chewing and swallowing)

The older the population the more prevalent are chronic conditions



The older the population the more drugs the patients are using

2010 Number of drugs used, by age, data for Scotland



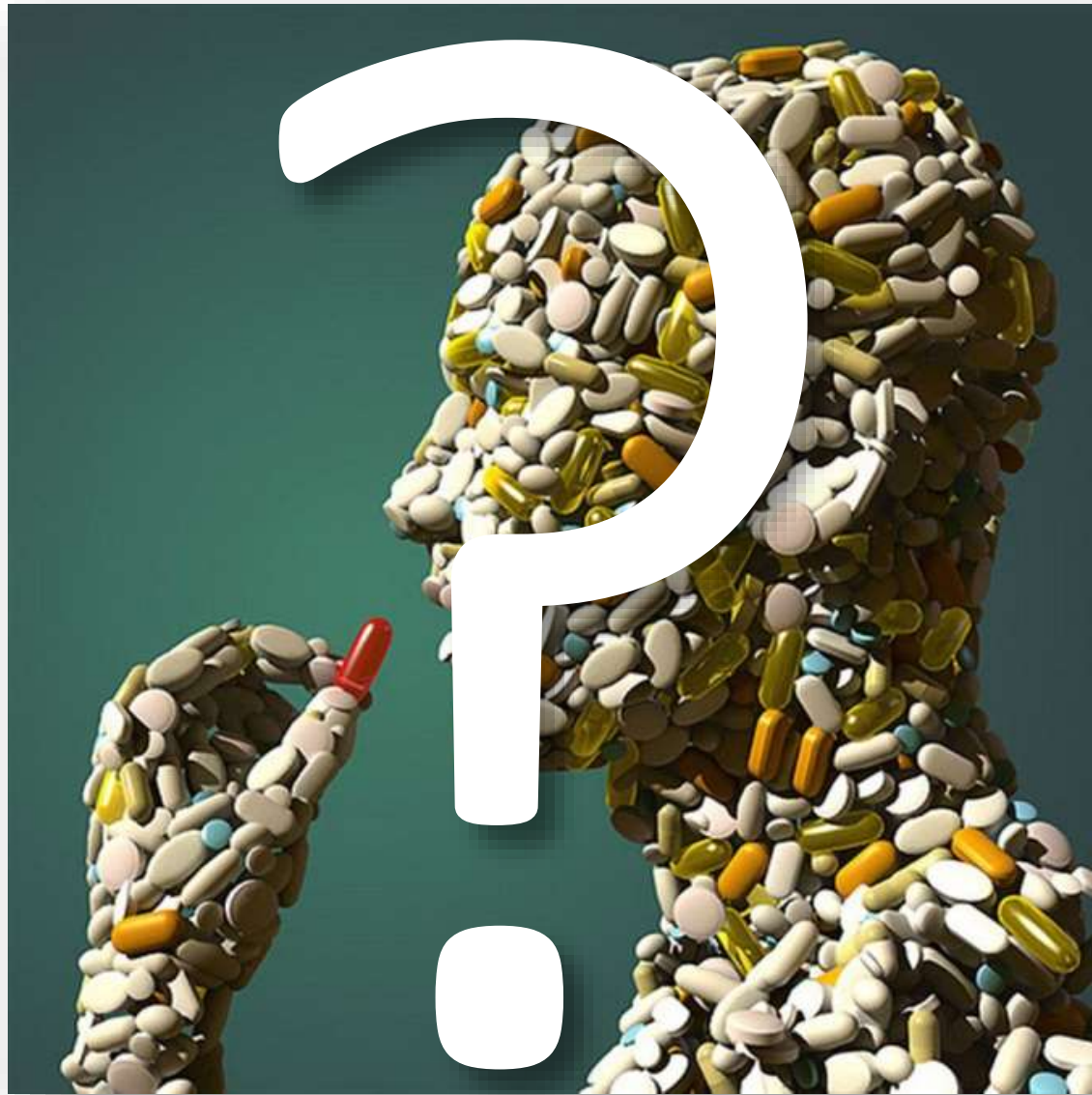
**Do you know this image
from your own patients?**



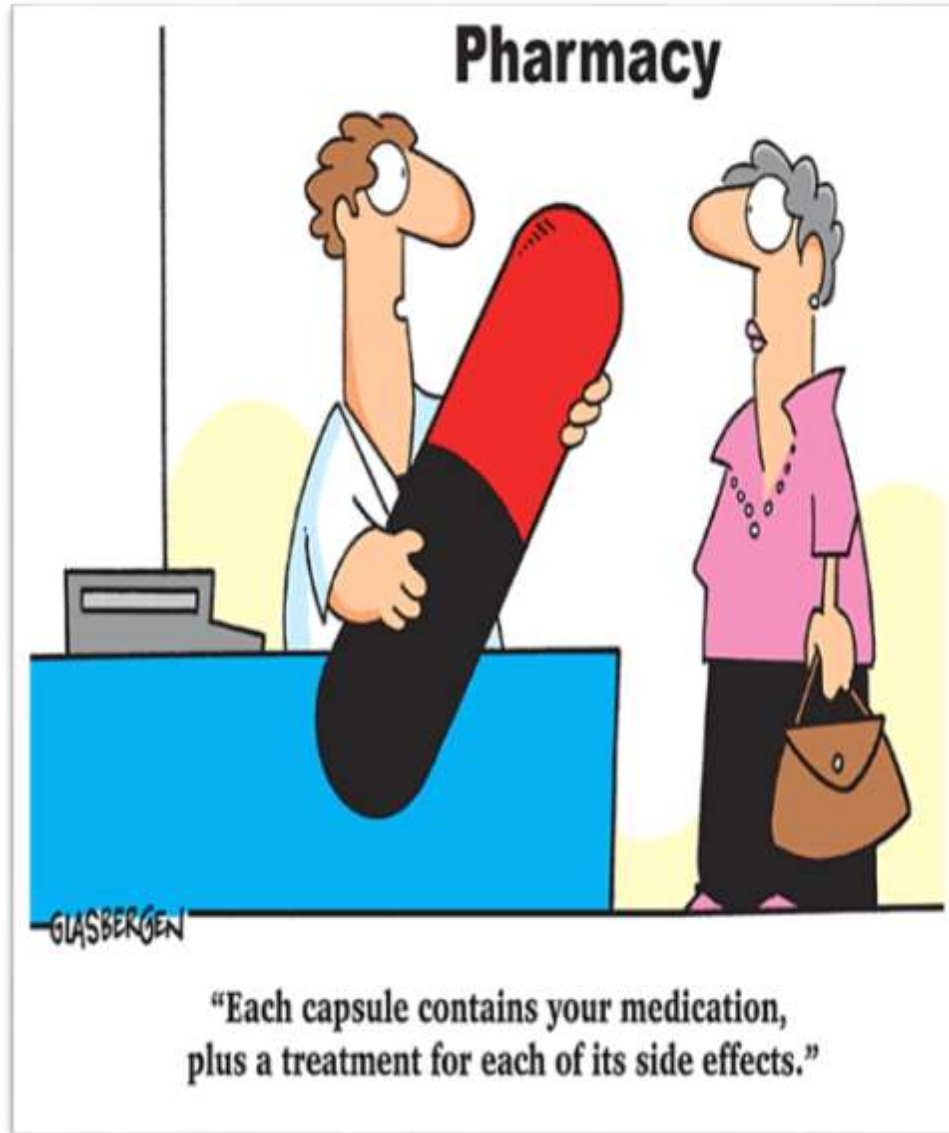
A natural history of drug taking?



Is polymedication / polytherapy / polypharmacy / polypragmasy a must in elderly?



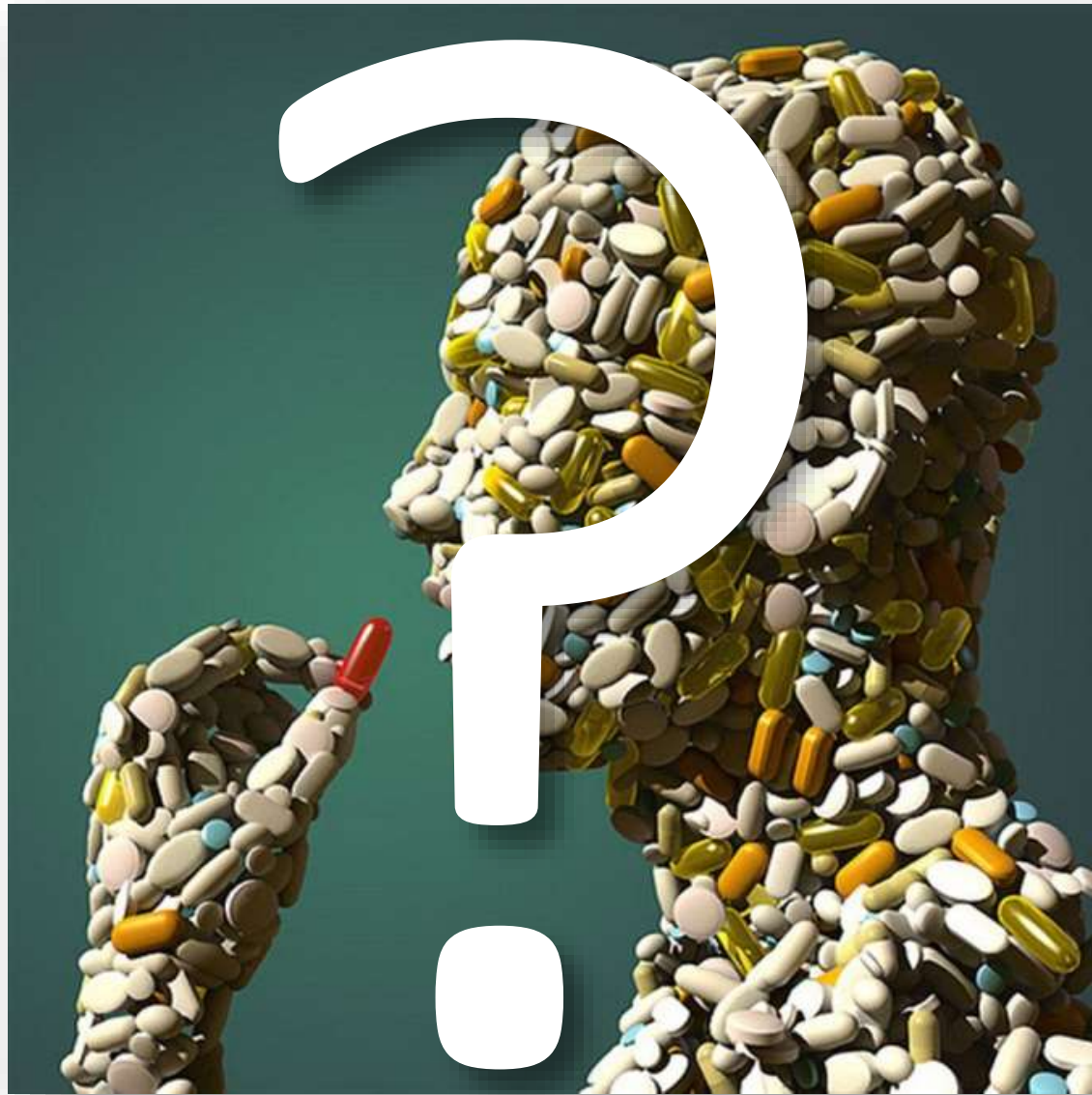
Where are we going to?



Consequences of inappropriate polypharmacy in elderly

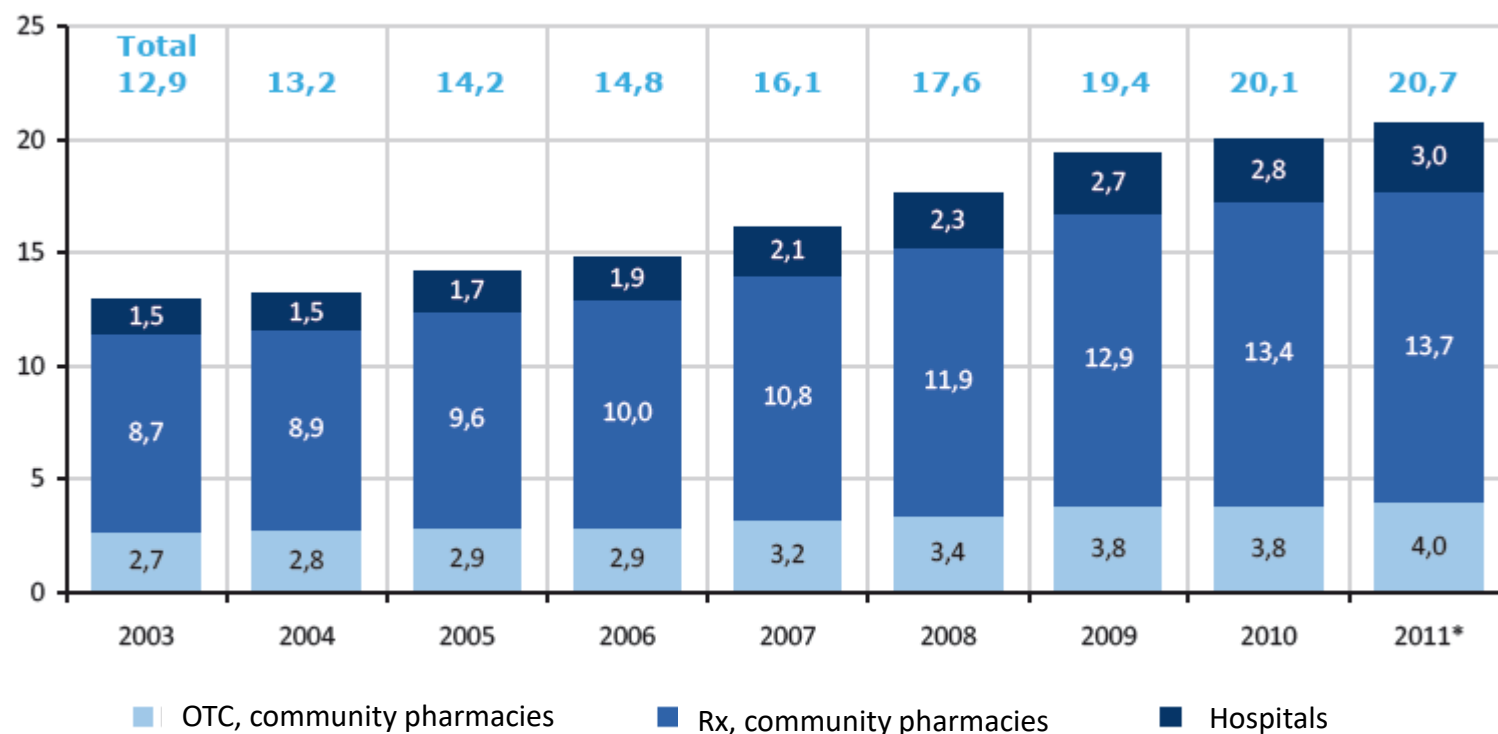
- **Higher total drug costs**
- **More often drug related problems**
- **Decreased patient adherence (compliance)**
- **Higher risk of geriatric syndromes**
- **Higher risk of hospitalisation**
- **Higher risk of institutionalisation**
- **Higher risk of inappropriate prescribing**

How many drugs is too much drugs in elderly?



Drug sell grows continuously

Pharmaceutical market in Poland, bil PLN



Źródło: IMS Poland, Dane Narodowe 09/2011, ceny producenta netto (PLN) . Rynek farmaceutyczny (Rynek leków: apteczny Rx, apteczny OTC i szpitalny), *progniza

Real patient perspective



Methods useful for drug review

- **STOPP/START criteria ¹**
- **Beer's criteria ²**
- **EU(7)-PIM drug list³**

¹ Gallagher Pet al. Int J Clin Pharmacol Ther. 2008; 46(2):72-83.

² Fick DM et al. Arch Intern Med. 2003; 163(22): 2716-24.

³ Renom-Guiteras A et al. Eur J Clin Pharmacol. 2015; 71(7): 861-75.

Scottish guidelines for polypharmacy management

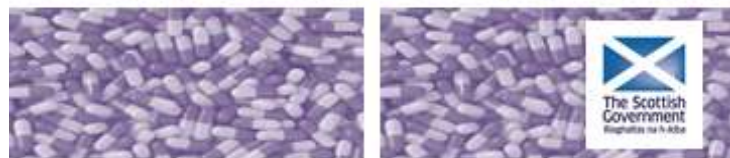
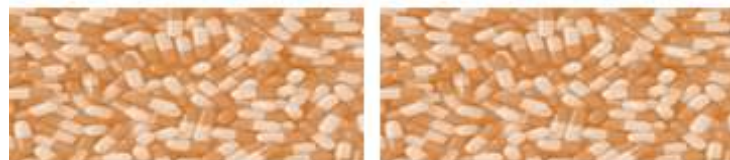
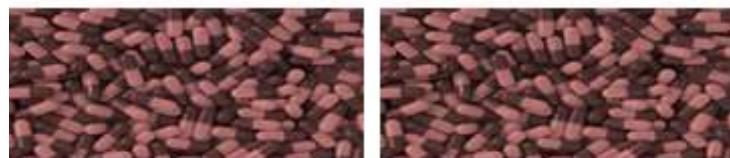
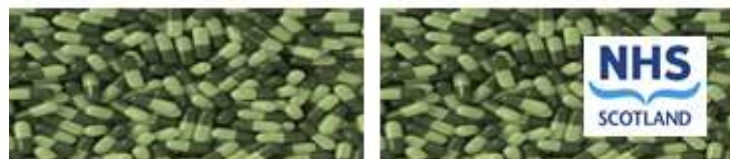


Table 2a: An overview of the '7-steps' with [Links](#) to section of greater detail

Domain	Steps	Process
Goals	1. Identify objectives of drug therapy	Review diagnoses and identify therapeutic objectives with respect to: <ul style="list-style-type: none"> ➤ Management of existing health problems ➤ Prevention of future health problems
Need	2. Identify essential drug therapy	Identify essential drugs (not to be stopped without specialist advice) <ul style="list-style-type: none"> ➤ Drugs that have essential replacement functions (e.g. thyroxine) ➤ Drugs to prevent rapid symptomatic decline (e.g. drugs for Parkinson's disease, heart failure)
	3. Does the patient take unnecessary drug therapy?	Identify and review the (continued) need for drugs <ul style="list-style-type: none"> ➤ with temporary indications ➤ with higher than usual maintenance doses ➤ with limited benefit in general or the indication they are used for ➤ with limited benefit in the patient under review (see Drug efficacy & applicability (NNT) table)
Effectiveness	4. Are therapeutic objectives being achieved?	Identify the need for adding/intensifying drug therapy in order to achieve therapeutic objectives <ul style="list-style-type: none"> ➤ to achieve symptom control ➤ to achieve biochemical/clinical targets ➤ to prevent disease progression/exacerbation
Safety	5. Does the patient have ADR or is at risk of ADRs?	Identify patient safety risks by checking for <ul style="list-style-type: none"> ➤ drug-disease interactions ➤ drug-drug interactions (see ADR table) ➤ robustness of monitoring mechanisms for high-risk drugs ➤ drug-drug and drug-disease interactions ➤ risk of accidental overdosing Identify adverse drug effects by checking for <ul style="list-style-type: none"> ➤ specific symptoms/laboratory markers (e.g. hypokalaemia) ➤ cumulative adverse drug effects (see ADR table) ➤ drugs that may be used to treat ADRs caused by other drugs
Cost-effectiveness	6. Is drug therapy cost-effective?	Identify unnecessarily costly drug therapy by <ul style="list-style-type: none"> • Consider more cost-effective alternatives (but balance against effectiveness, safety, convenience)
Adherence/ Patient centeredness	7. Is the patient willing and able to take drug therapy as intended?	Identify risks to patient non-adherence by considering <ul style="list-style-type: none"> • Is the medicine in a form that the patient can take? • Is the dosing schedule convenient? • Is the patient able to take medicines as intended? • Might the patient benefit from the Chronic Medication Service (CMS)? • Is the patient's pharmacist informed of changes to regimen? Ensure drug therapy changes are tailored to patient preferences by <ul style="list-style-type: none"> • Discuss with the patient/carer/welfare proxy therapeutic objectives and treatment priorities • Decide with the patient/carer/welfare proxies what medicines have an effect of sufficient magnitude to consider continuation or discontinuation

Let's go for a drug review

1. Acard
2. Amlozek 5
3. Betalok ZOK 50
4. Bilobil
5. Centrum Silver 50+
6. Diclac 50
7. Digoxin 0,25 mg
8. Furosemid
9. Hydrominum
10. Magnefar B6 Cardio
11. Nimesil
12. Nitrazepam 5 mg
13. Olfen 100
14. Prestarium 10 mg
15. Rutinocsorbin
16. Stilnox 10 mg
17. Telmizek 40 mg
18. Vinpocetine

