

WELCOME AND INTRODUCTION

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**DEMOGRAPHY IN THE THIRD
MILLENNIUM IN EUROPE**

Pyramid...

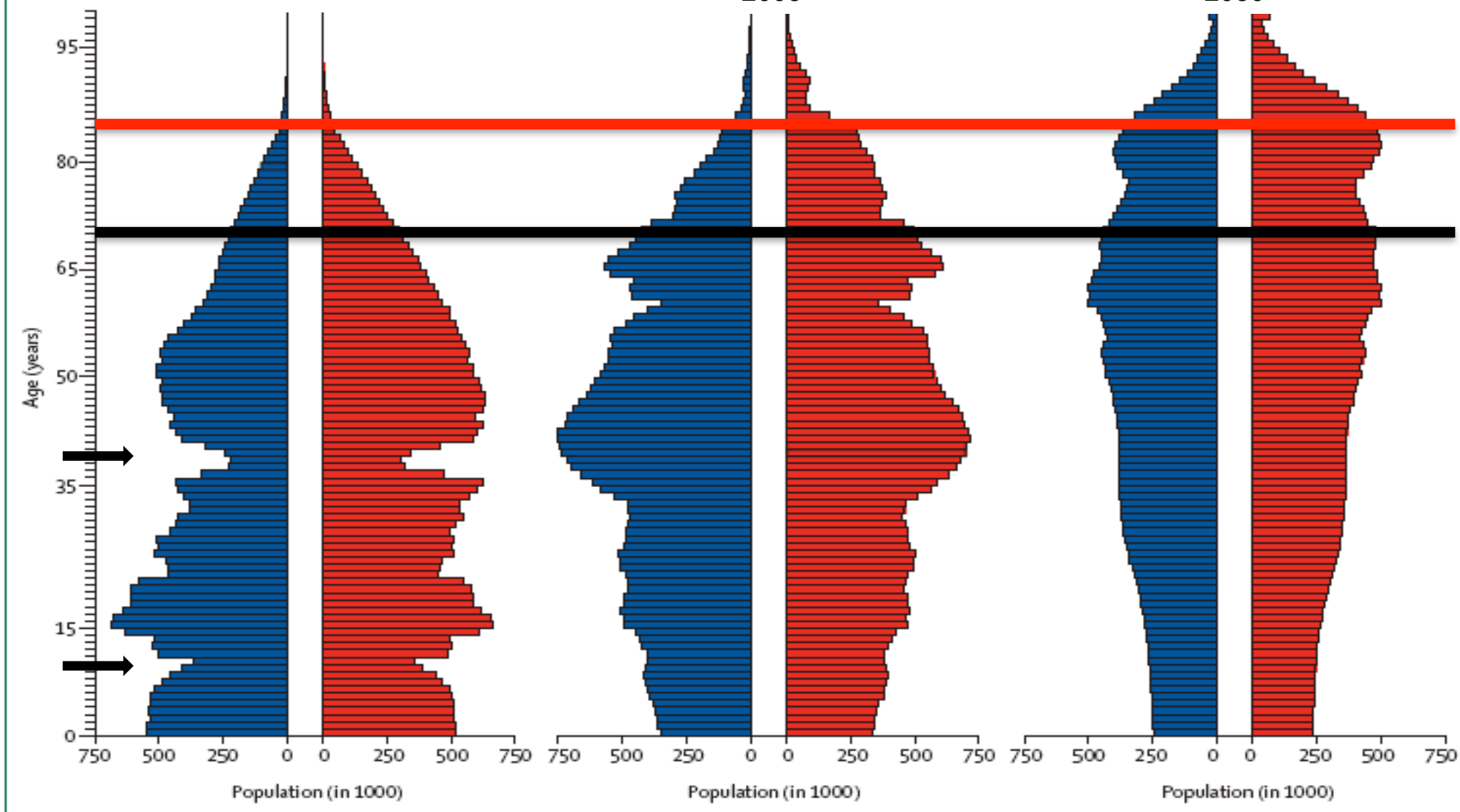
Fungus...



1956

2005

2050



Age (years)

Population (in 1000)

Population (in 1000)

Population (in 1000)

AGING AND MULTIMORBIDITY: NUMBERS OF THE EPIDEMICS

- **By the year 2050 in Europe the number of citizens older than 60 years will be higher than those younger than 10 years**
- **55 to 98% of elderly people have two or more apparently unrelated diseases**
- **Elderly people with multimorbidity will be around 75 millions in 2060 in Europe (nearly 10% of the whole population)**
- **Multimorbidity is inevitably associated with polypharmacy**

ISSUES RELATED TO MULTIMORBIDITY AND COMPLEXITY

? - Which are the mechanisms underlying the co-occurrence of apparently unrelated diseases in the same individual?

→ Can we decrease such consequences of multimorbidity as inappropriate drug prescription and the corresponding costs?

Aging with multimorbidity: A systematic review of the literature

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ABSTRACT

A literature search was carried out to summarize the existing scientific evidence concerning occurrence, causes, and consequences of multimorbidity (the coexistence of multiple chronic diseases) in the elderly as well as models and quality of care of persons with multimorbidity. According to pre-established inclusion criteria, and using different search strategies, 41 articles were included (four of these were methodological papers only). Prevalence of multimorbidity in older persons ranges from 55 to 98%. In cross-sectional studies, older age, female gender, and low socioeconomic status are factors associated with multimorbidity, confirmed by longitudinal studies as well. Major consequences of multimorbidity are disability and functional decline, poor quality of life, and high health care costs. Controversial results were found on multimorbidity and mortality risk. Methodological issues in evaluating multimorbidity are discussed as well as future research needs, especially concerning etiological factors, combinations and clustering of chronic diseases, and care models for persons affected by multiple disorders. New insights in this field can lead to the identification of preventive strategies and better treatment of multimorbid patients.

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HOW TO WISELY CHOOSE MEDICATIONS IN PATIENTS WITH MULTIMORBIDITY

- It is impossible to have evidence-based guidelines for every possible combination of multiple concomitant diseases
- To make the best possible use of existing guideline, the internist should at least be able to provide guidance about medications least likely to harm
- “Primum non nocere”!

REPOSI

REgistro POliterate della Società Italiana di Medicina Interna (2008-2016)

- To assess the rate of multimorbidity and polypharmacy at hospital admission and discharge in Italian Internal Medicine wards
- Process indicators: relationship between multimorbidity/polypharmacy and medication prescription appropriateness
- Outcome indicators: relationship between multimorbidity/polypharmacy and mortality/re-admission

REPOSI

Enrollment criteria

- **Each participating internal medicine or geriatric ward (80 in Italy and Spain) enrolls consecutively at least 5 patients over a week in Winter, Spring, Summer, Autumn**
 - **Age >65 years**
 - **Minimum data set in an electronic CRF**

EARLY REPOSI (2008)

Minimum Data Set CRF:

- **Sociodemographic data**
- **Diagnosis at admission and discharge**
- **Comorbidities**
- **Drug intake at admission/discharge**
- **Intercurrent adverse events**



REPOSI (2010-2012)

THE NOVELTIES

- **New data in CRF: Cumulative Illness Rating Scale (CIRS), Short Blessed Test, Barthel disability index, Geriatric Depression Scale**
- **New data in CRF: risk factors, main laboratory data**
- **Patient follow-up at 3 months and 12 months**

REPOSI: Database in 2015



- **More than 5000 hospitalized elderly patients**
 - **Mean age: 79 \pm 7 years**
 - **% older than 80: 46%**
 - **Duration of hospitalization: 11 \pm 8 days**
 - **Social and clinical frailty: 79%**

REPOSI:

**MAJOR PUBLISHED RESULTS ON
PROCESS AND OUTCOME INDICATORS**

PROCESS-RELATED RESULTS

Appropriateness of drug prescription

- **Antithrombotic drugs in atrial fibrillation (2010), Eur J Intern Med 21: 516. Ididem 2013;24:800**
- **Proton pump inhibitors (2011), Eur J Intern Med 22: 205**
- **Antidepressants (2012), International Psychogeriatric 24: 606**
- **Inappropriate prescription of allopurinol and febuxastast and risk of adverse events in the elderly (2014). Eur J Clin Pharmacol 70:1495**
- **The stigma of low opioid prescription in the hospitalized multimorbid elderly (2015), Intern Emerg Med 10:305**

OUTCOME-RELATED RESULTS .1

Polypharmacy and clinical outcomes

- **Effect of polypharmacy on length of hospital stay and mortality (2011), Eur J Clin Pharmacol 67: 507**
- **Effect of dementia on in-hospital and post-discharge outcomes (2011), Int J Geriatr Psychiatry 26:930 – (2013), J Gerontology: Medical Sciences, 68:419-25**
- **Anticholinergic drug burden and clinical outcomes (2013), Drugs and Aging, 30:103**
- **Risk factors for hospital re-admission (2013), Eur J Intern Med 24:45**

OUTCOME-RELATED RESULTS .2

Polypharmacy and clinical outcomes

- **Association between thromboprophylaxis of venous thromboembolism, bleeding and mortality in elderly patients with multimorbidity (2013). Intern Emerg Med 8:509**
- **Drug-drug interactions and adverse clinical events (2013) Pharmacol Drug Saf 22:1054**
- **eGFR and clinical outcomes (2014) Int Emerg Med 9:735**
- **Gout, allopurinol intake and clinical outcomes in hospitalized elderly patients (2015) Eur J Intern Med**

THE FUTURE OF REPOSI



- **A permanent observatory on multimorbidity and polypharmacy in the elderly**
- **A joint effort between Italian and Spanish internists**
- **Other European internal medical societies?**
- **Promotion of prescription appropriateness in order to avoid potentially inappropriate medication (PIM)**
- **Development of protocols to evaluate more rational prescription of multiple drugs**

Thank you for listening

