



FORESIGHT AND MODELLING FOR EUROPEAN HEALTH POLICY AND REGULATION

MEDICAL COST ESTIMATION (WP5)





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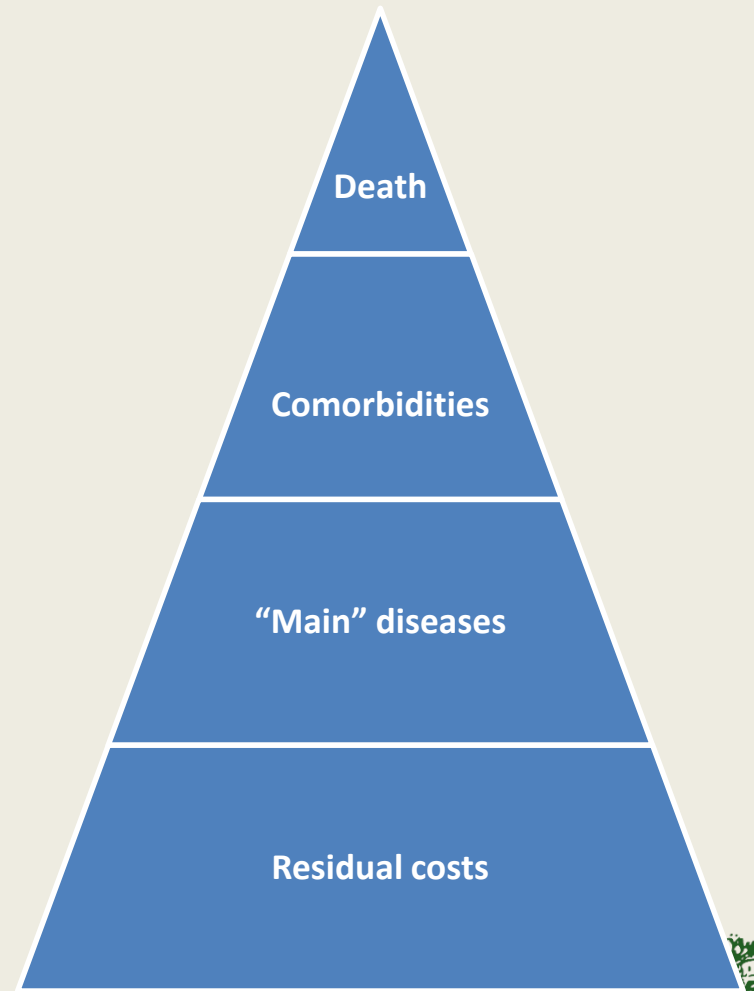
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OBJECTIVES

 Estimate patient-level medical expenditures for 10 Fresher-defined diseases + other costs

 These predictions are used to feed the micro-simulation model



METHODOLOGY

- 🌳 Rely on comprehensive administrative claims data to identify patients with specific chronic disease of interest
- 🌳 Bills on the individual level are summed up, but cannot be attributed to one disease in most cases
- 🌳 Bottom-up estimation approach, through two-part model regressions of individuals' healthcare expenditure on health status
- 🌳 Advances compared to previous research:
 - Age and gender-specific estimates
 - Comorbidity costs explicitly modeled (almost 6% in French data have at least 2 diseases; most important concern for the elderly)
 - Length of time since diagnosis (France)
 - Death-related costs
 - Unrelated costs

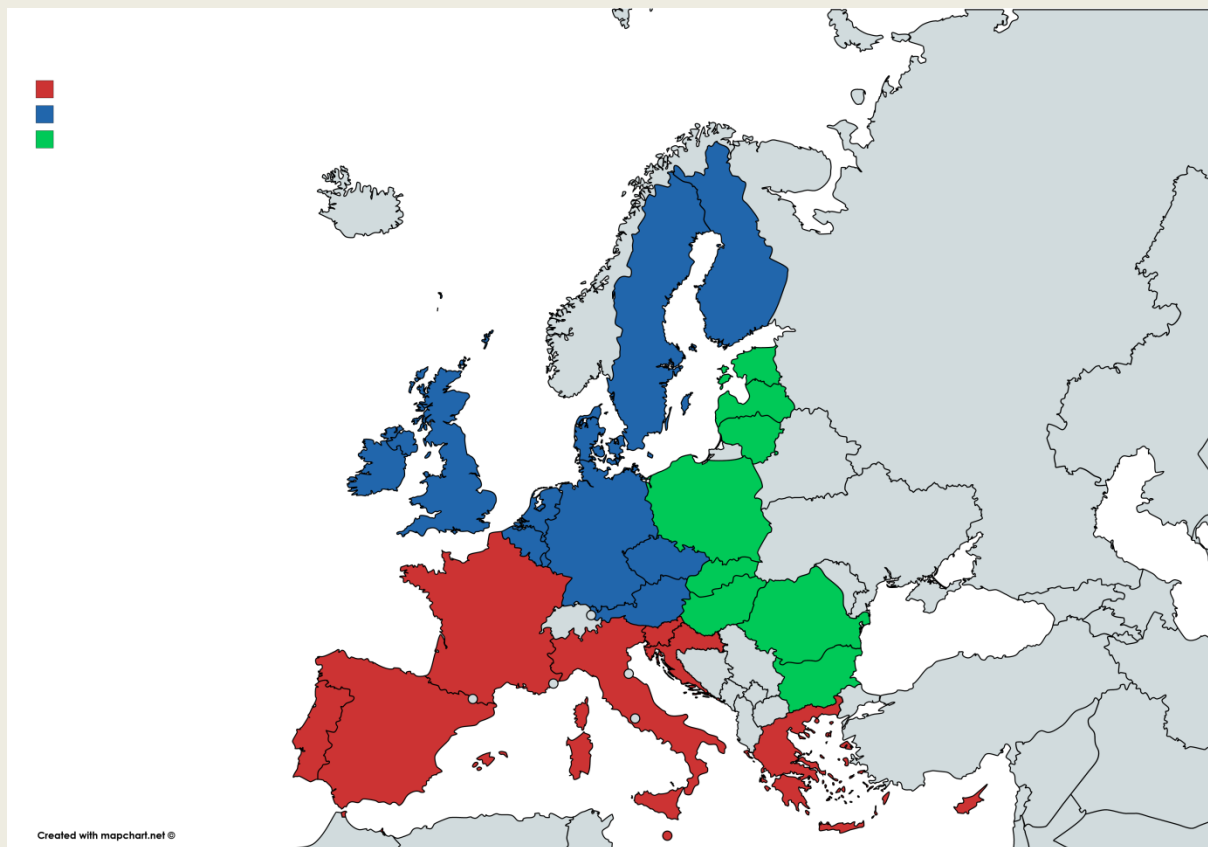


GEOGRAPHIC EXTRAPOLATION APPROACH

Northern EU
Netherlands

Eastern EU
Estonia




Southern EU
France



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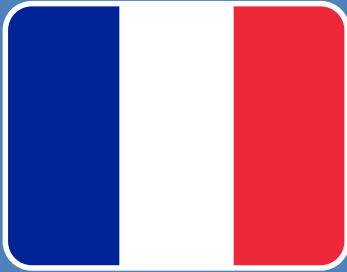
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GEO-EXTRAPOLATION APPROACH

-  Estimate disease-specific conversion ratios for each anchor country
-  Take into account differentials in inpatient; outpatient and pharmaceutical costs (based on OECD data)
-  Use weighted average formula for each disease



DATA



France (Southern Europe)

- National Health Insurance beneficiaries (both users and non-users)
- Nationally representative sample, 476,000 individuals in 2014
- 20 years follow-up
- Almost all expenses covered



Estonia (Eastern/Central Europe)

- Complete EHIF reimbursed care administrative dataset (~1 mln individuals; ~5 mln bills);
- 95% of population covered by mandatory public health insurance (2013)
- All reimbursement costs for primary care, specialists, hospital stays and rehabilitation
- Although there is substantial OOP component not covered by this data, adjustments made for this (both for pharmaceutical and other care)



Netherlands (Northern Europe)

Reimbursed annual cost for all insured Dutch population
Insurance universally compulsory
Various sources of health care costs included



RESULTS: COI ESTIMATES IN FRANCE

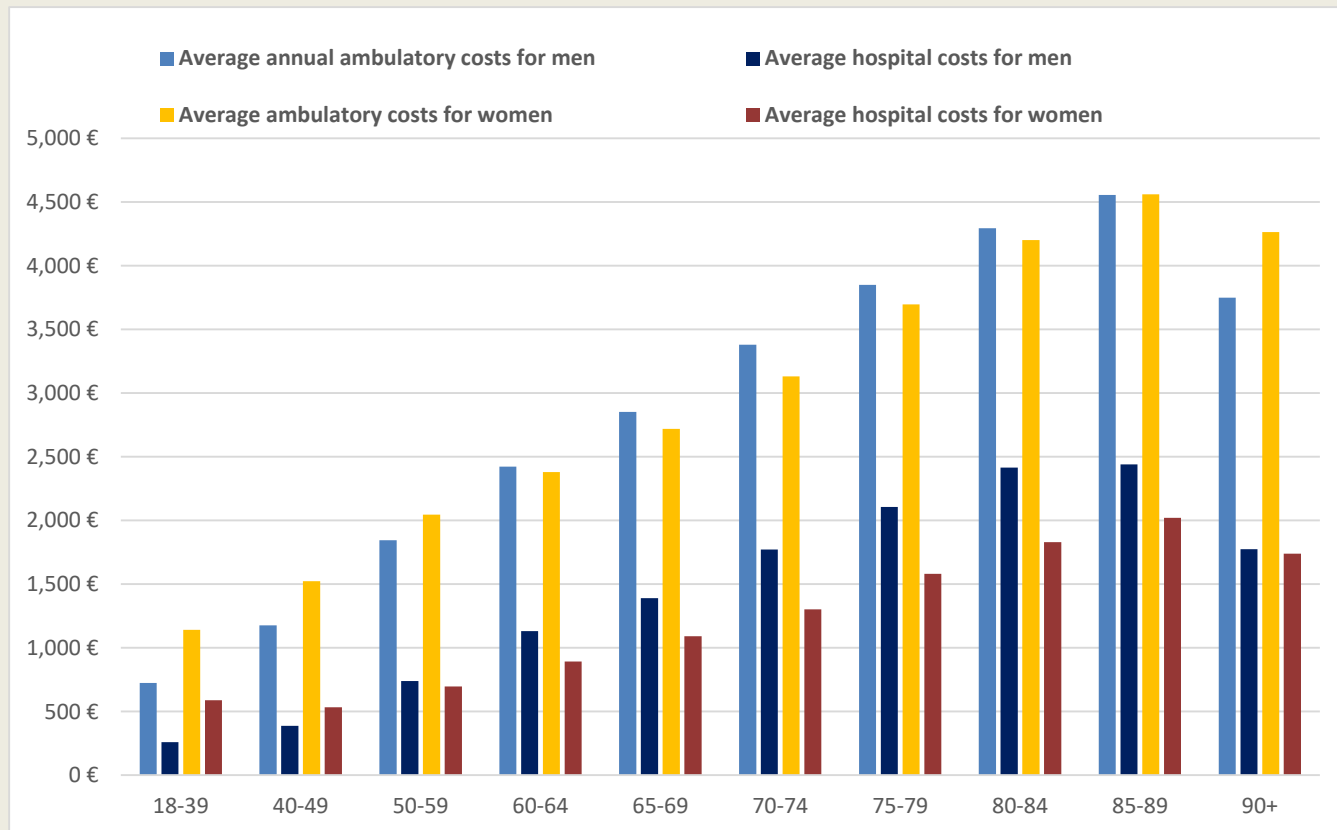


Average extra cost associated with each chronic disease for people without comorbidity:

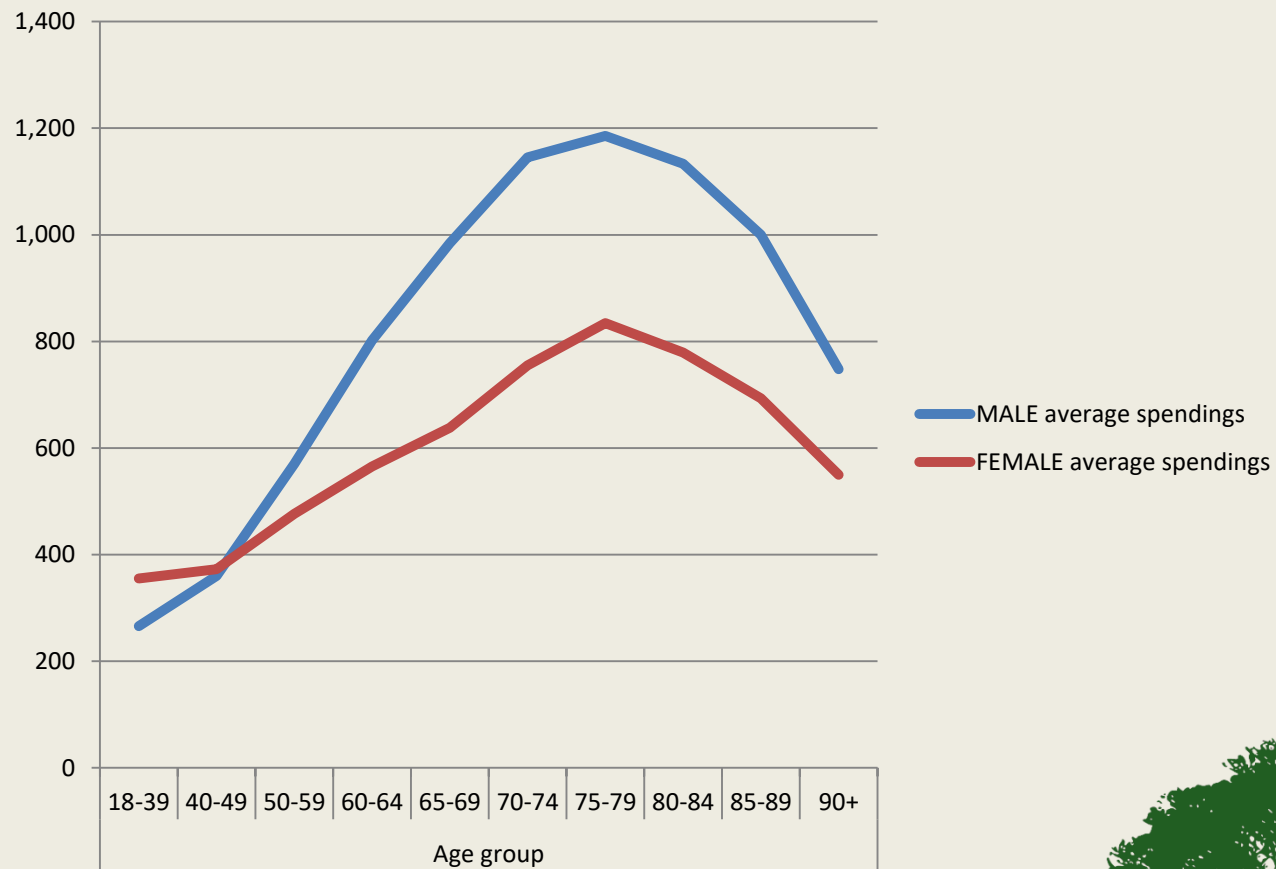
	Average cost per capita and 95%CI
Stroke	3 466 € 2 973 - 3 959
Heart disease	1 828 € 1 570 - 2 087
Cancers	5 115 € 4 322 - 5 909
Diabetes	1 776 € 1 510 - 2 041
CKD	8 323 € 7 090 - 9 555
Respiratory illness	1 285 € 1 103 - 1 466
Cirrhosis	4 225 € 3 623 - 4 827
Major depression	1 528 € 1 303 - 1 754
Neurologic disorders	2 121 € 1 798 - 2 445
Alcohol user disorders	2 323 € 1 924 - 2 722



FRANCE: PER CAPITA HEALTH EXPENDITURES IN 2014



ESTONIA: PER CAPITA EXPENDITURES (EXCEPT MEDICATIONS)



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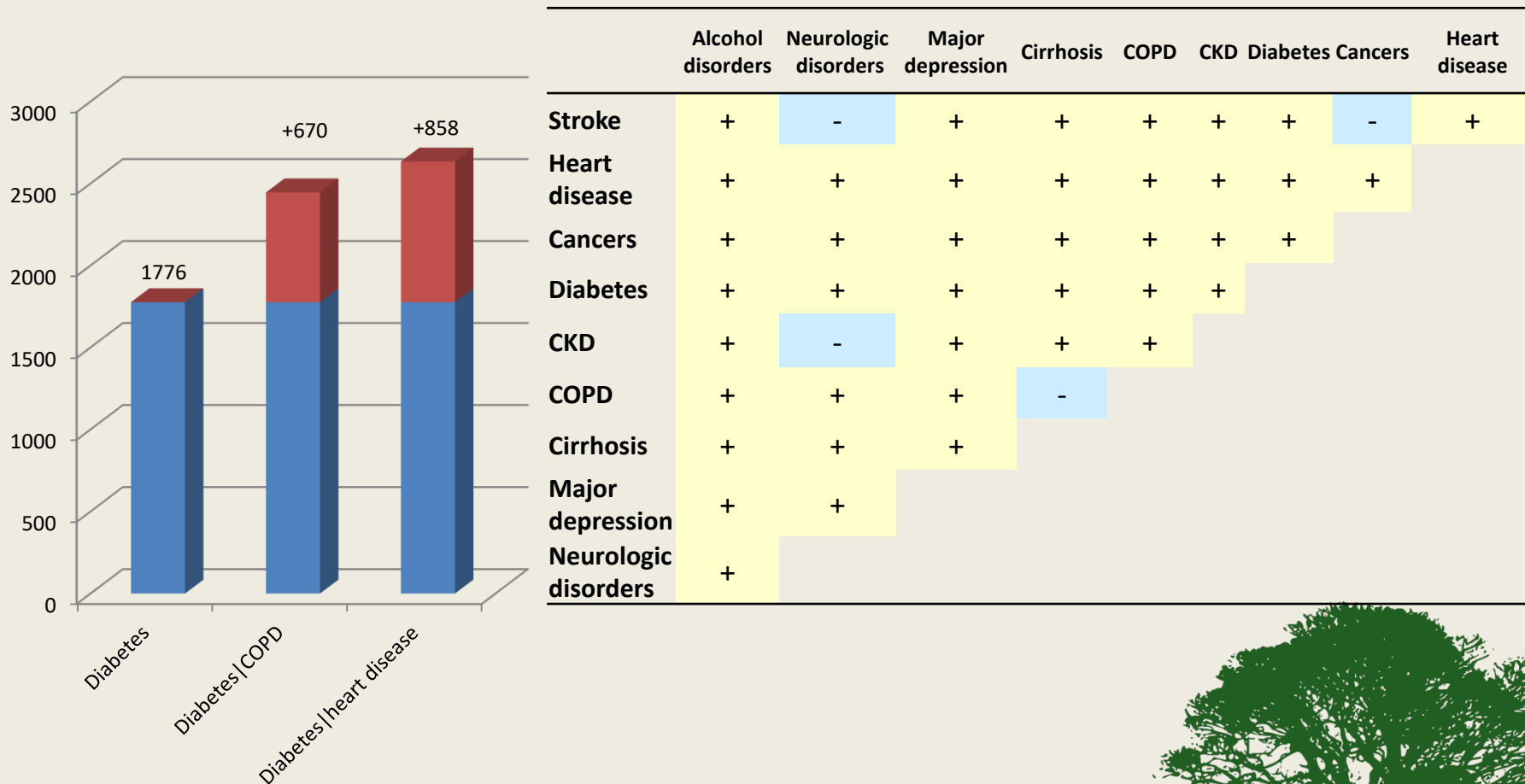
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COMORBIDITY COSTS IN FRANCE

Multi-morbidity is associated with increased health services utilisation, overuse of emergency admissions, use of polypharmacy, and spiralling costs.

Super-additivity (+) was demonstrated for 41 cases out of 45 combinations studied



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A “BY-PRODUCT” OF THE FRESHER PROJECT

 The FRESHER project has also investigated on the causes of multimorbidity



 Clinical factors are the strongest predictors of the incidence of a first chronic condition **but they did not play a role in progression from a single disease to multimorbidity.**

 On the contrary, **socioeconomic and behavioural factors** were found to be important prognostic factors of multimorbidity, highlighting the need of improved consideration of non-clinical risk factors in secondary prevention



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IMPACT OF SCENARIOS ON HEALTHCARE EXPENDITURES, SOUTHERN EUROPE

