

A NATIONAL COHORT ANALYSIS

Burden of disease and management of Mesothelioma in France

INTRODUCTION

Malignant pleural mesothelioma (*MPM*) is an uncommon cancer with **poor survival**. There are approximately **2,500 newly diagnosed cases each year in United States** and approximately **5,000 in Western Europe**. The incidence of MPM is continuously increasing in some countries as Australia and United Kingdom ⁽¹⁾ but remains very stable for over 5 years in U.S. and Japan. The aim of the study is to determine the burden of MPM disease and analyze associations between socioeconomic deprivation and urbanization survival in France.

METHODS

1. STUDY POPULATION

DESIGN
Retrospective and longitudinal study of the PMSI-MCO database (*French Medical Information System Program - Medicine, Surgery, Obstetric*) and using International Classification of Diseases, 10th Revision (*ICD-10*) codes.

DATA EXTRACTION
Inclusion
All hospital stays with ICD-10 codes C45.0 “*Mesothelioma of pleura*” or C45.9 “*Mesothelioma, unspecified*” as principal/related or significantly associated diagnosis (*PD, RD and SD*) were extracted from the PMSI-MCO 2011 / 2012 database.

MPM incident patients
- No MPM codes as PD, RD and SD since 2006
- No C34* / C38.4 codes (“*Malignant neoplasm if bronchus and lung*” / “*Malignant neoplasm of pleura*”) as PD, RD and SD since 2006
- Medical review

Follow-up
2-years of follow-up from the first stay of each patient

2. ECONOMIC EVALUATION

A cost per patient was amounted during the analysis period according to different indicators:

DRG (diagnosis related groups)
Official tariffs taking account outlier length of stays (*increasing or decreasing the DRG tariff if above or below a specific range stated for each DRG*), fees for clinicians for the private sector.

Daily intensive care units supplements.
Expensive drugs
For private sector, costs of expensive drugs listed on “*extra DRG*” were calculated proportionally to those observed in public sector because the information on extra drug is not available in this sector.

Costs were expressed in 2015 Euro and from social insurance perspective.

3. STATISTICAL ANALYSIS

Cox models were used to predict the survival rates of MPM incident patients at 1-year and 2-years.

RESULTS

1. CHARACTERISTICS OF THE COHORT

The cohort was composed of **1,890 incident patients of MPM** and was stable by year of inclusion: **969 and 921 patients** were included in 2011 and 2012, respectively. Patients were **73.6 ± 10.0 years** on average at diagnosis, **76% were male** (*fig.1*). Patients mainly lived in **urban zones (57%)** and have a **low social deprivation index (53%)**. During the 2-years follow-up, **84%** of patients have at **least one comorbidity** (*hypertension, diabetes, renal insufficiency, chronic obstructive pulmonary disease, pulmonary insufficiency, and other chronic lung diseases*) (*fig.1*), **65%** at least one chemotherapy administration, which **72%** were treated by pemetrexed and/or bevacizumab.

2. COST PER PATIENT

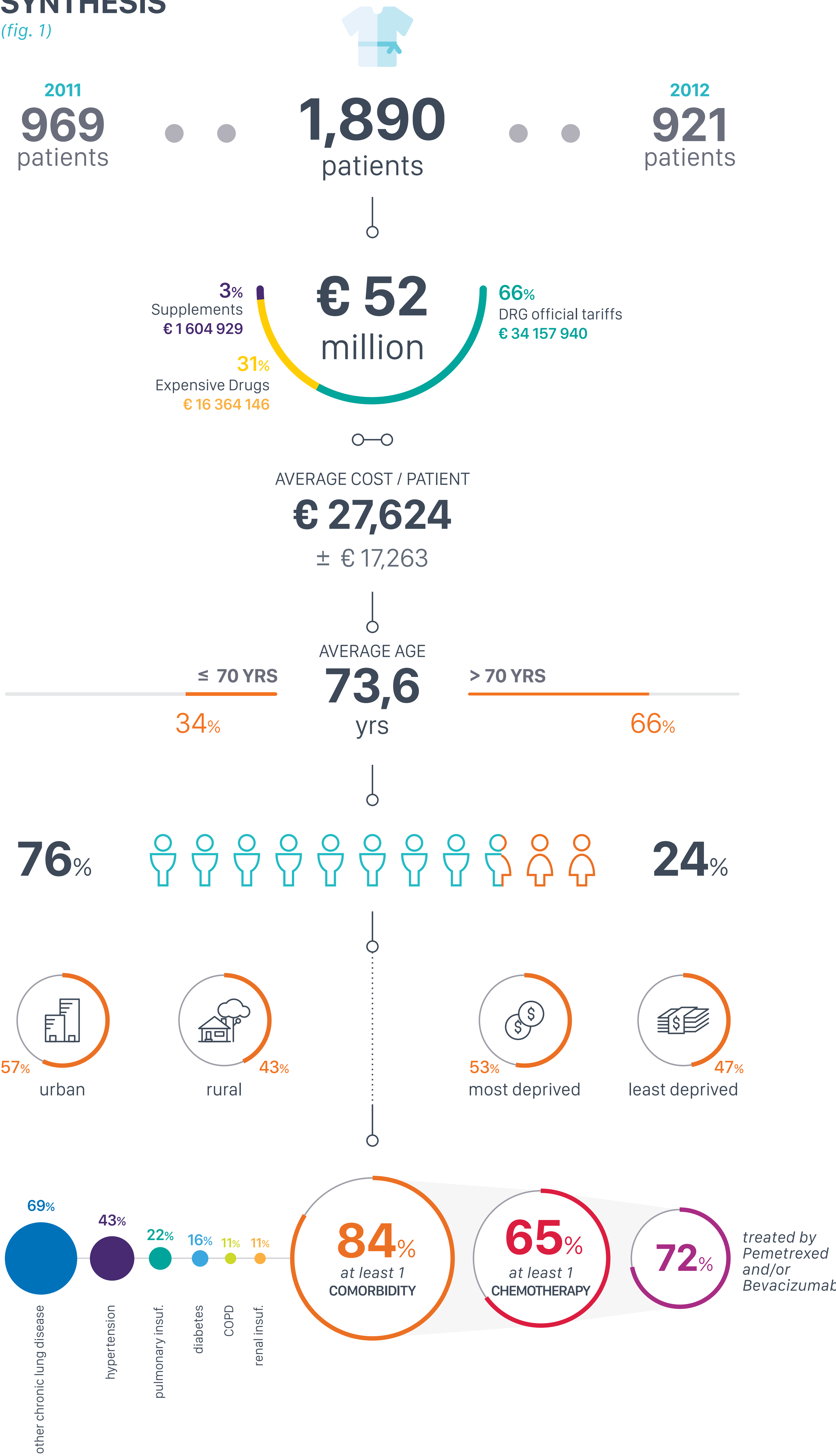
Mean cost per patient during 2-years of follow-up was **€27,624 ± 17,263**, which represents a total cost **€52 million**, divided in DRG official tariffs: 66%, drugs: 31%, and daily intensive care units supplements: 3% (*fig.1*).

3. COX MODELS

Survival rates at 1-year and 2-years were **64%** and **48%**, respectively. Median survival was **14.9 months** (95%CI = [13.7-15.7]), significantly higher in women than in men (18.2 [15.1-21.7] vs. 14.1 [13.2-15.3]; *p*<0.001), and younger patients (<70 years) than in elderly (18.0 [15.7-20.0] vs. 13.3 [12.6-14.5]; *p*<0.0001) (*fig.2*). After adjustment on age at diagnosis, gender and comorbidities, patients living in rural zones have less likely to die than patients living in urban zones at 1-year (*HR*=0.82 [0.72-0.96], *p*<0.05) and 2-years (*HR*=0.83 [0.73-0.94], *p*<0.01); social deprivation index being non-significant variable in the analyse.

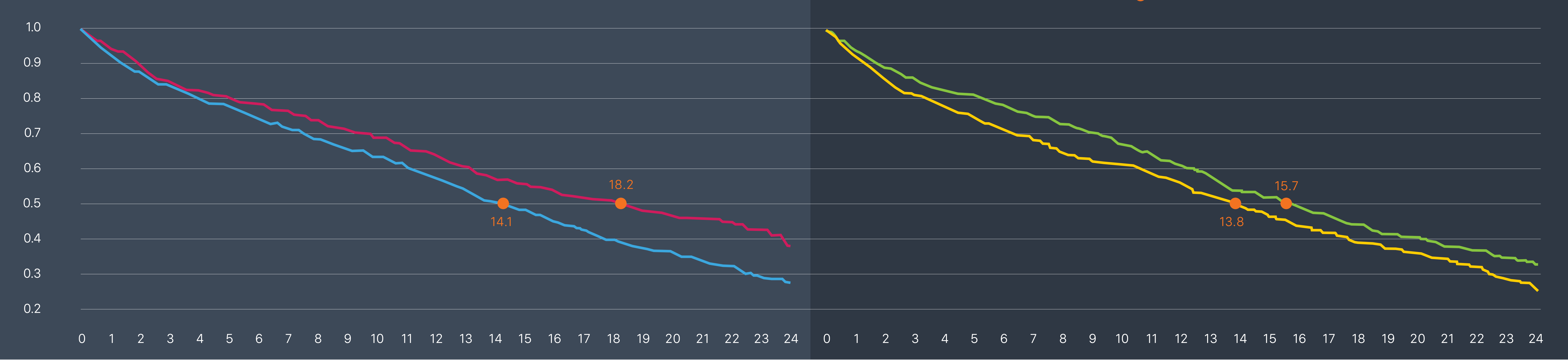
SYNTHESIS

(fig. 1)



SURVIVAL RATES OF MESOTHELIOMA PATIENTS

Death at 2 years according to genre / rurality index (*fig. 2*)



CONCLUSION

MPM remains a disease with a poor prognostic of survival (**64% and 48% at 1 and 2-years, respectively**). After adjustment on age, genre and comorbidities, rurality index (*rural vs. urban zones*) was significantly associated with **survival at 1-year and 2-years**.