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BURDEN OF DISEASE OF OVARIAN CANCER IN SPAIN. The OvarCost Study Methology.

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1. INTRODUCTION

Despite the decrease in incidence and mortality rates in the past years, which is mainly due to the implementation of early detection programs, cancer is still one of the most important public health problems in developed countries.

In 2012, 8 million people died due to cancer, with an annual incidence and prevalence rates of 460.8 and 381.6 per 100,000 inhabitants, respectively[1].

Lung, breast, colorectal, prostate and stomach cancers have the highest prevalence rates[1]. However, other types of cancers with relatively lower incidence and prevalence rates have high mortality rates and impose an important economic burden on society.

In Spain, ovarian cancer has relatively low prevalence and incidence rates (11.1[2] and 10.2[3] per 100,000 inhabitants, respectively), but it is associated with a high mortality rate in women. It is the 2nd most frequent gynecological malignant tumor, just behind breast cancer, and the 6th leading cause of death due to cancer[1].

The economic burden of the disease in Spain is currently unknown. According to a recent published study on the economic burden of all types of cancer in Spain[4], the total cancer annual cost is € 9,257 million; € 4,224 million are direct healthcare costs (46%) and € 5,033 million are direct non-healthcare and indirect costs (54%).

Using this data and the ovarian cancer prevalence in Spain, we can approximate the proportional theoretical economic burden per patient in Spain.

Of total cancer in Spain, the 1 and 5 years prevalence rates of ovarian cancer are 1.5% and 1.4%[1], respectively. Proportionally, this could implies a total cost of € 138 million at 1 year and € 631 million at 5 years. Considering direct healthcare costs, it would be € 63 million per year and € 288 million at five years, while direct non-healthcare and indirect costs would reach € 75 and € 343 million euros, at 1 and 5 years, respectively. Following this calculations the theoretical cost of ovarian cancer per patient per year would be in the range of € 52,061 to € 67,684.

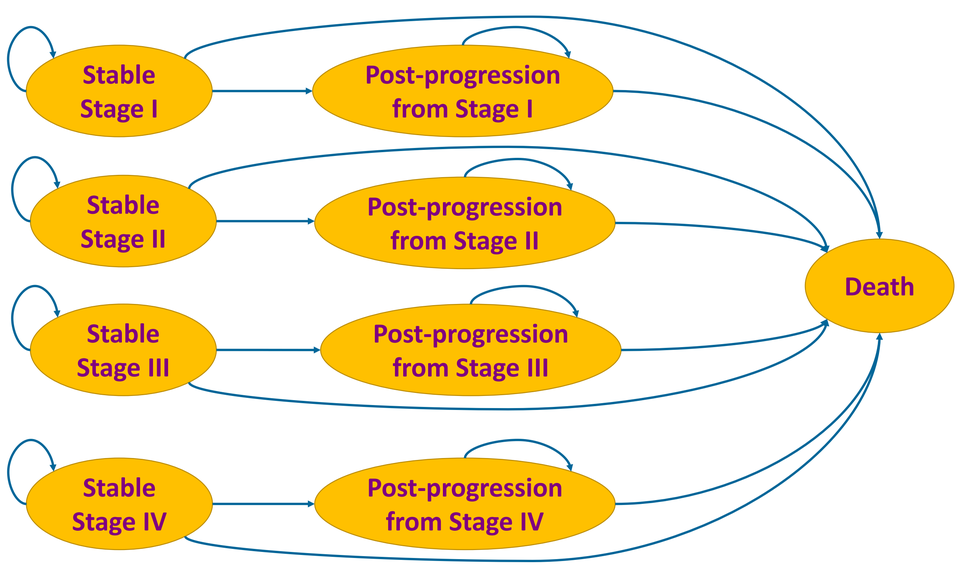
2. OBJECTIVES

As this calculations corresponds to a theoretical approach we have implemented the OvarCost Study. Its main objective is to estimate the economic burden of ovarian cancer in Spain, from a societal perspective.

3. METHODOLOGY

1. Model: A Markov model with a social perspective, a 10 year time horizon, and 3 weeks cycles was designed (Figure 1).

Figure 1. Markov model structure.



The model focuses on epithelial ovarian cancer (which represents 90%[5] of total ovarian cancer cases), and includes the four stages of the pathology (Stages I to IV) in which diagnosis may occur, and their corresponding "stable" and "post-progression" health states.

Transition probabilities between health states were calculated using an exponential distribution based on progression-free survival and global survival.

Epidemiological data and resource use for each health state and disease stage were obtained from national and international published literature and validated through a multidisciplinary Advisory Board using a Delphi Methodology.

2. Population: We estimated the number of women with ovarian cancer at each stage from available prevalence and incidence data (Tables 1-2).

Table 1. Estimated number of women with epithelial ovarian cancer in 2015 in Spain.

	Number of women[6]	Percentage (per 100,000)	Total number
Prevalence	23,720,021	11,1%	2370
Incidence	23,720,021	10,2%	2178

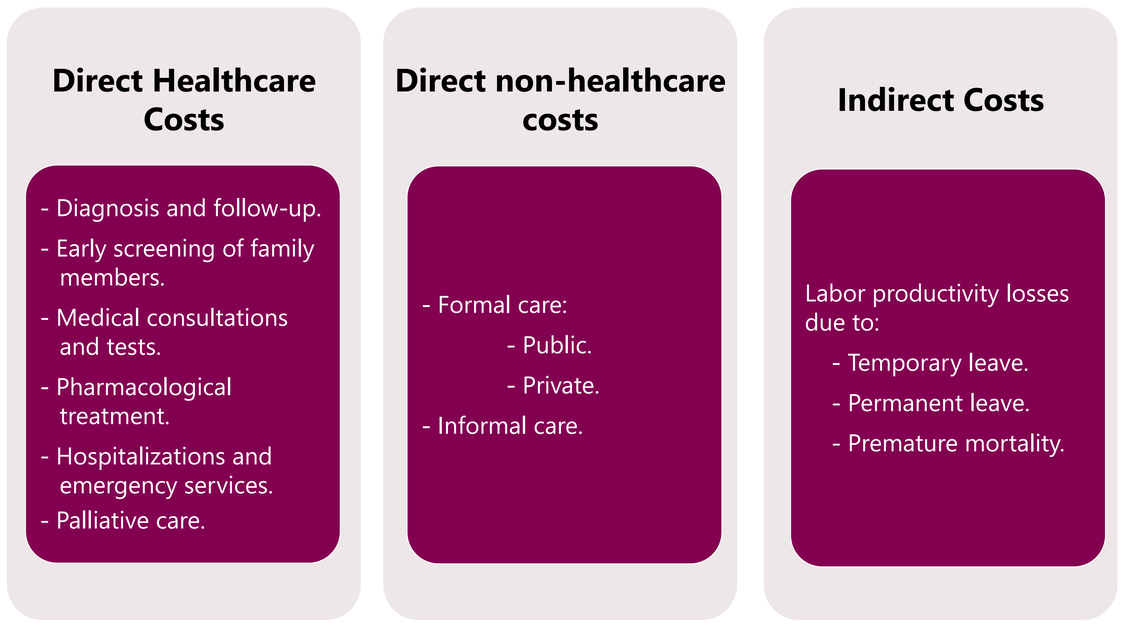
Table 2. Distribution of epithelial ovarian cancer per disease stage.

	Stage I	Stage II	Stage III	Stage IV
Prevalence[7]	18,7%	7,1%	57,3%	16,9%
Incidence[8]	26,6%	8,9%	41,7%	22,9%

3. Costs: Direct healthcare costs, direct non-healthcare costs and indirect costs were included (Figure 2).

The base year for all costs will be the year when the model is carried out. An annual rate of labor productivity growth of 1%[9] and an annual discount rate of 3%[10] will be used.

Figure 2. Types of costs considered in the model.



4. RESULTS

Results will be ready in 2016. Given that ovarian cancer has relatively higher morbidity and mortality rates than other cancers, we expect a total economic burden and average cost per patient per year to be higher than those estimated theoretically from literature data.

Our model will provide costs for each of the different ovarian cancer stages. We expect patients in Stages III and IV to bear a higher economic burden than those in Stages I and II.

CONCLUSIONS

The relatively high morbidity and mortality rates of ovarian cancer highlight the need for developing an appropriate economic model to estimate the social economic burden of ovarian cancer in Spain.

The estimation of the social economic burden of ovarian cancer will help decision making processes, as well as enhance the adequate evidence-based design of healthcare interventions and public health policies focused on ovarian cancer.

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