

COST OF ILLNESS OF CUTANEOUS SQUAMOUS CELL CARCINOMA IN ITALY

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BACKGROUND

Cutaneous squamous cell carcinoma (CSCC) accounts for approximately 20% of all nonmelanoma skin cancer (NMSC) cases and is currently the second most common human malignancy worldwide, trailing behind basal cell carcinoma [1]. Unlike basal cell carcinoma (BCC), which rarely generates metastases, the CSCC can generate metastases initially at the level of regional lymph nodes and subsequently at distant sites from the primary tumor [2]. The risk of metastasis for most patients is no more than 3% -5% after 5 years of follow-up [3]. The CSCC has a propensity to generate distant metastases that are very low, but this condition is associated with a poor prognosis and a median survival of less than 2 years [4]. Surgical excision is the treatment of choice as it allows the type of tumor to be histologically confirmed and the margins of resection to be assessed [5]. Local therapies such as radiotherapy or electro chemotherapy can be used as alternative options when surgery is not indicated; with reference to systemic therapies, the advanced CSCC being a rare event, the scientific evidence is scarce and to date there is no standard regimen for patients with CSCC [5].

OBJECTIVES

The aim of this study was to estimate the total annual direct costs incurred by the National Health Service for the management and treatment of CSCC and advanced CSCC patients in Italy.

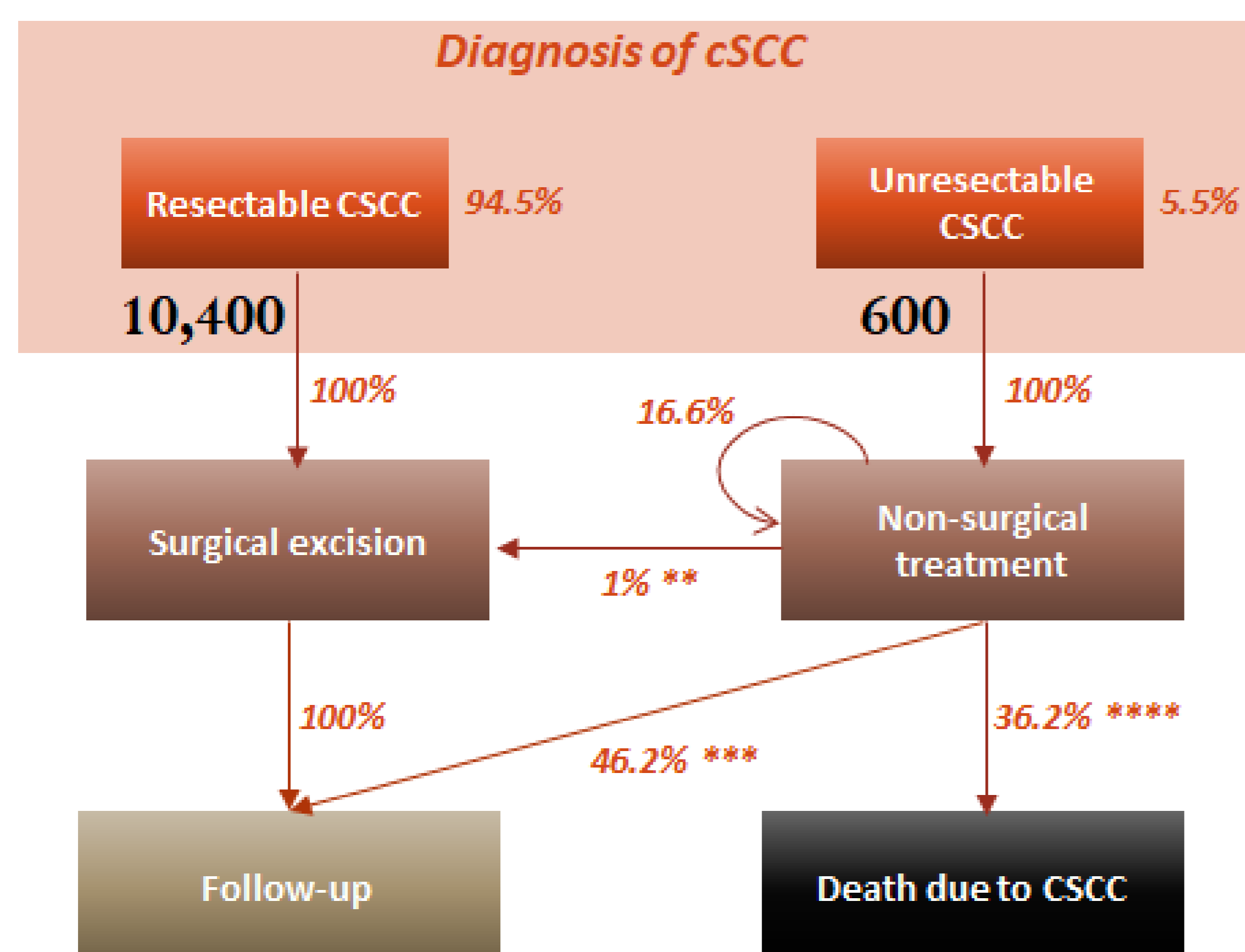
METHODS

An incidence-based cost of illness (COI) model was developed to estimate direct costs associated with the treatment and management of CSCC patients in Italy. A literature review was performed to identify treatment pathway and costs associated with CSCC treatment in Italy.

Model structure and epidemiological parameters

The identified treatment pathway was validated with a team of clinical experts and was separated by resectable CSCC and for those with locally advanced, unresectable or metastatic CSCC (advanced CSCC) (Figure 1).

Figure 1: Therapeutic pathway of a patient with CSCC



Italian Association of Cancer Registries (AIRTUM) estimated 11,000 incidence patients with CSCC in Italy [6, 7]. From the literature emerged that about 5% of CSCC patients were in advanced stage (about 600 patients) [2, expert opinion]. Surgical excision is the first-line treatment for patients with resectable CSCC, and it is followed by periodical follow-up (ultrasound scans, dermatological observations in epiluminescence, x-rays and visits). Patients with advanced CSCC had a complete response from non-surgical treatment (radiotherapy and chemotherapy) in 46% of cases [8] followed by follow-up monitoring; among the remaining patients 36.2% die from the disease [9], 16.6% repeat the non-surgical treatment while 1% undergo surgical treatment (expert opinion).

Cost parameters

Treatments costs (surgical and non-surgical) were obtained through the analysis of the National Hospital Discharge Database (HDD) for the years 2008-2014;

Monitoring and terminal care costs were obtained from national tariffs of outpatient care service [10] and from the literature respectively [11] (Table 1).

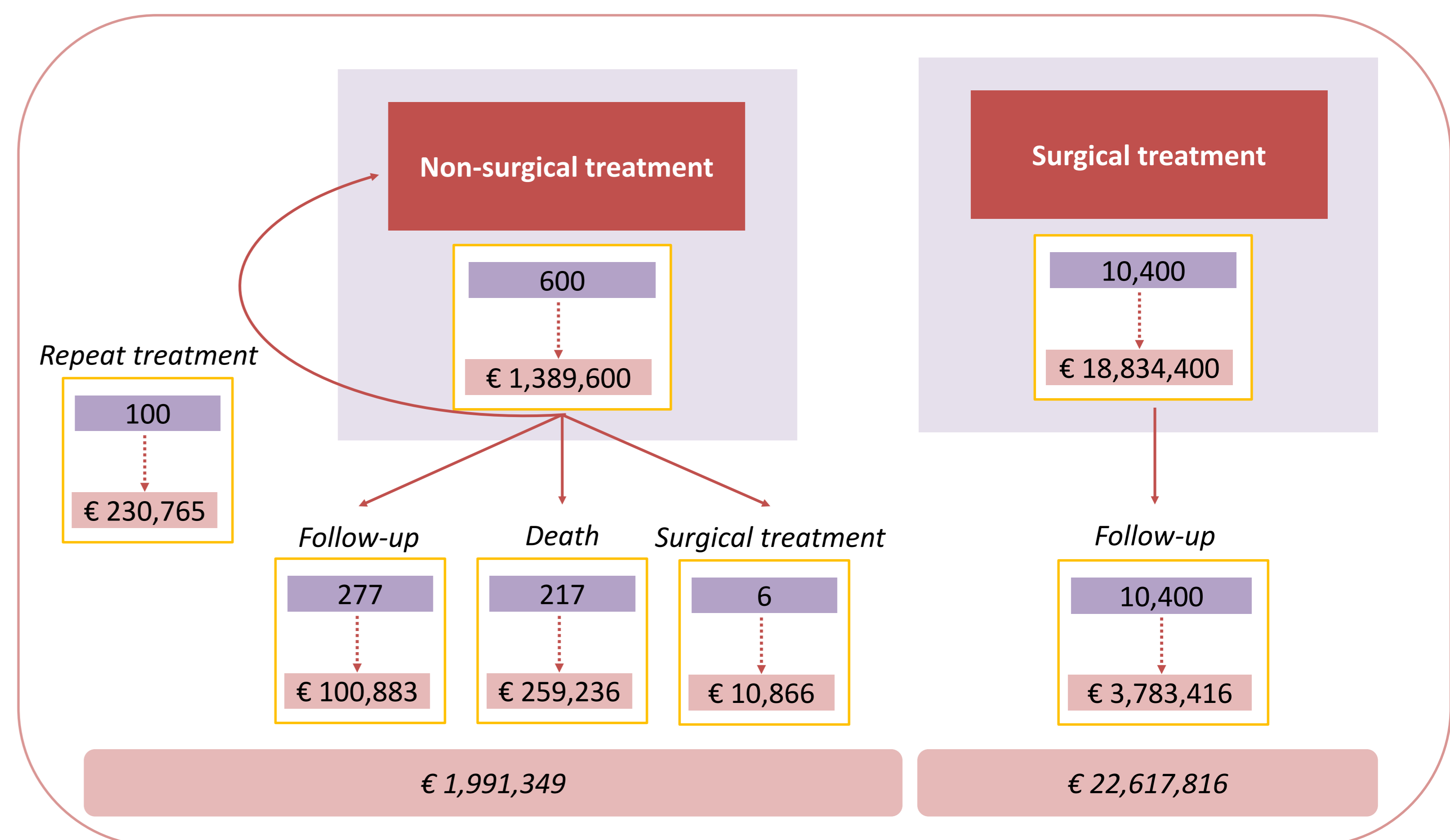
Table 1: Cost parameters

	Patient cost/year	Source	Note
Surgical excision	€ 1,811.0	HDD 2008-2014	Selection criteria: Diagnosis ICD 9 CM 173.xx "Other skin cancers" AND surgical DRG
Non-surgical treatment	€ 2,316.0	HDD 2008-2014	Selection criteria: Diagnosis ICD 9 CM 173.xx "Other skin cancers" AND DRG 409 (Radiotherapy) OR DRG 410 (Chemotherapy)
Follow-up	€ 363.8	National tariff of outpatient care	4 dermatological observations in epiluminescence (Code 89.39.1)+ 4 thoracic ultrasound (Code 88.74.1) + 1 chest x-ray (Code 87.41) + 4 general visits (Code 89.7)
Best Supportive Care	€ 1,194.4	Johnston et al. 2012	Discounted to 2018 - Italy (100% hospice costs)

RESULTS

Associating the estimated direct costs for each phase of the treatment pathway with the proportion of patients present in each phase, the COI model estimated an annual economic burden of about € 24.6 million for the management and treatment of patients with CSCC in Italy; € 2 million of which were associated to patients with advanced CSCC (Figure 2). The average cost per patient with advanced CSCC was higher compared to that of patient with resectable CSCC (€ 3,319 vs € 2,237 respectively).

Figure 2: Number of incident patients and total direct cost by type of treatment and phase of the therapeutic diagnostic course



CONCLUSION

Although most CSCC are successfully cured with surgical excision, a subset of CSCC are diagnosed in the advanced stage of the disease. Our analysis showed that advanced cSCC patients are associated with a higher average cost than patients with resectable CSCC.

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