

Assessing impact of kidney cancer-related premature mortality and productivity loss in Greece and Portugal

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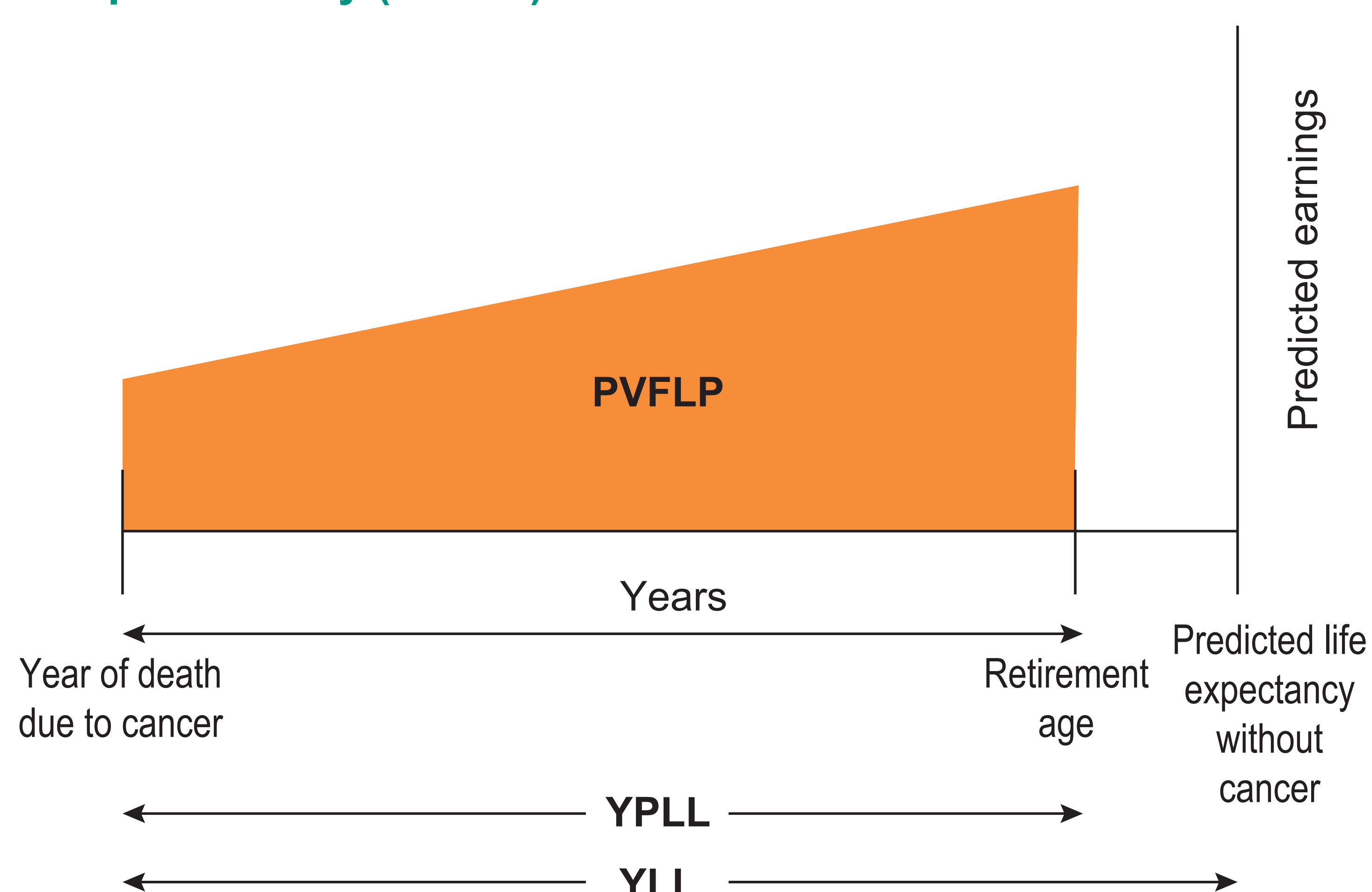
Background

According to 2020 GLOBOCAN data, an estimated 431,288 patients per year are diagnosed with neoplasms of the kidney, constituting 2.4% of all cancer diagnoses. There were 1,808 new cases of kidney cancer (2.9% of all cancers) in Greece and 1,191 (2.1% of all cancers) in Portugal.¹ In the last decade, the number of kidney cancer deaths in Europe is decreasing in the population younger than 65. On the contrary, in Greece and Portugal, the number of kidney cancer deaths in this population is not showing this positive trend but is stable.² The current analysis estimated the mortality burden and the cost of lost productivity due to kidney cancer deaths in Greece and Portugal.

Methods

The human capital approach (HCA) was used to estimate years of life lost (YLL), years of productive life lost (YPLL), and productivity losses due to premature deaths from kidney cancer (ICD-10 code: C64 - Malignant neoplasm of kidney, except renal pelvis). Present value of future lost productivity (PVFLP) was calculated using age-specific mortality, wages, and employment rates. Data was sourced from the World Health Organization, Eurostat, and the World Bank. Eurostat mortality data was used for kidney cancer patients who died in a single year, stratified by age group: 0-14, 15-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, and 70+ years old. Costs were expressed in 2019 euros (€).

Figure 1. Model schematic illustrating years of life lost (YLL), years of productive life lost (YPLL), and present value of future lost productivity (PVFLP) calculations



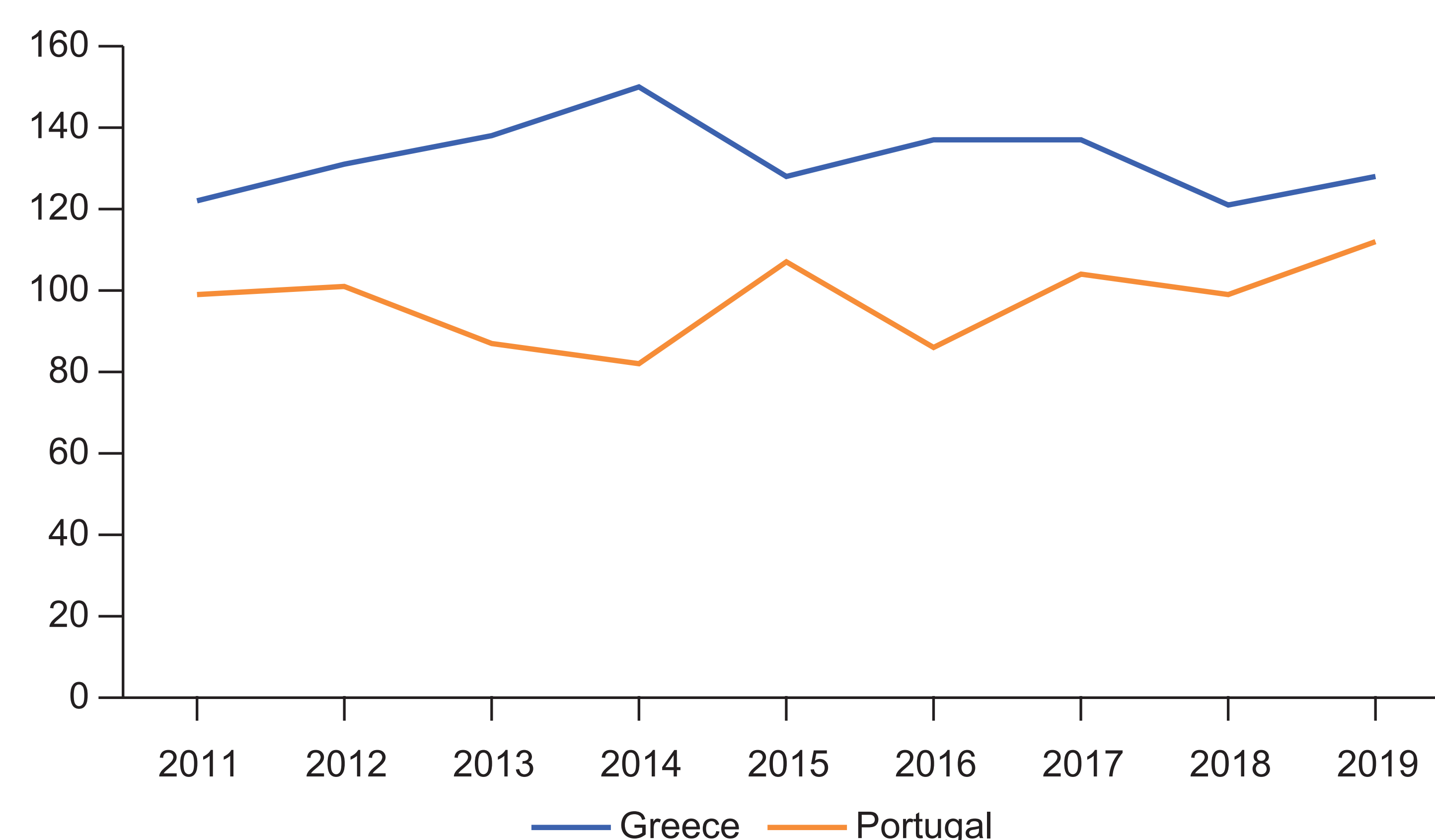
Results

In 2019 there were 564 kidney cancer deaths in Greece and 454 in Portugal.

Table 1. Number of deaths, years of life lost (YLL), and years of productive life lost (YPLL) in 2019

	ICD code	Number of deaths 2019			YLL 2019			YPLL 2019		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Greece	C64	388	176	564	3,636	2,234	5,871	912	414	1,326
Portugal	C64	296	158	454	3,100	2,297	5,397	833	445	1,278

Figure 2. Number of kidney cancer deaths in age group <65 years in 2019



We estimated that these cancer deaths resulted in 5,871 (3,636 in males and 2,234 in females) YLL in Greece and 5,397 (3,100 in males and 2,297 in females) YLL in Portugal (Table 1). Annual PVFLP was estimated to be 14.76 M€ in Greece and 10.74 M€ in Portugal (Table 2).

Table 2. Present value of future lost productivity (PVFLP) due to kidney cancer mortality in 2019

	PVFLP 2019			PVFLP/death 2019		
	Male	Female	Total	Male	Female	Total
Greece	EUR 10,454,208	EUR 4,310,284	EUR 14,764,492	EUR 26,946	EUR 24,487	EUR 26,178
Portugal	EUR 7,468,035	EUR 3,276,610	EUR 10,744,645	EUR 25,229	EUR 20,739	EUR 23,667

Limitations

This study does not account for direct costs of kidney cancer to the healthcare system or productivity loss due to kidney cancer morbidity or inability to work while alive. There is a wider impact on the caregivers of patients with kidney cancer, which is not included. Last available mortality data for some countries is for 2020, but due to different definitions of COVID-related mortality, this data was not included in the analyses.

Conclusion

The YLL and productivity losses due to kidney cancer premature mortality are substantial in Greece and Portugal. The assessment of productivity losses due to kidney cancer provides new information that may assist decision makers in the allocation of resources, reducing the burden it supposes in working-age individuals.

References

- GLOBOCAN. Available from: <https://gco.iarc.fr/today/home>. Accessed June 15, 2022.
- Eurostat mortality database 2019. Available from: <https://ec.europa.eu/eurostat/web/health/data/database>. Accessed May 20, 2022.

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