

Potential Budget Impact of Adjuvant Treatments for Stage III Melanoma in Ireland

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Introduction

The objective of this research is to estimate the potential budget impact of adjuvant treatment using checkpoint inhibitors and BRAF targeted treatments, for stage III resected melanoma in Ireland.

Methods

A budget impact model was developed in line with the Guidelines for Budget Impact Analysis of Health Technologies in Ireland (2018) produced by the Health Information and Quality Authority, Ireland. The perspective was that of the drugs budget in the publicly funded health system. Time horizon was 5 years. Included regimens were nivolumab, pembrolizumab, and dabrafenib in combination with trametinib (DAB-TRAM), in line with the dosing schedules in the product licenses. Drug costs were estimated based on median treatment duration in the pivotal trials. Routine care was observation; analysis of national drug reimbursement data showed little use of interferon. It was assumed that 75% patients would receive a checkpoint inhibitor, evenly split between nivolumab and pembrolizumab, and the remaining 25% DAB-TRAM. Eligibility was estimated based on incident melanomas (2015) and a weighted average of the annual percentage change, using National Cancer Registry data. Uncertainty was considered using one-way sensitivity analysis (OWSA) and scenario analyses. Costs are VAT inclusive.

Results

The predicted cost per patient treated was €139,032, €99,743 and €138,668 for pembrolizumab, nivolumab and DAB-TRAM respectively. It was estimated that 162 patients would be eligible for treatment in 2019, increasing to 188 by 2023. The estimated 5-year gross budget impact was €108.4 million (Table 1). Since there were no cost-offsets, this also represents the net budget impact. Cost offsets in the metastatic setting were not considered, given the immaturity and paucity of data on retreatment in the metastatic setting. Eligible patient population and estimated drug costs were drivers of uncertainty in OWSA; estimates ranged from €86.7 million to €138 million (Figure 1). Estimates were robust to scenario analysis.

Table 1: Estimated Gross Budget Impact

Drug Acquisition Costs						
Year	2019	2020	2021	2022	2023	Totals
Eligible patients	162	168	174	181	188	872
Pembrolizumab market share	37.5%	37.5%	37.5%	37.5%	37.5%	100%
Nivolumab market share	37.5%	37.5%	37.5%	37.5%	37.5%	
Dabrafenib with trametinib market share	25.0%	25.0%	25.0%	25.0%	25.0%	
Pembrolizumab	€8,423,664	€8,747,168	€9,083,097	€9,431,927	€9,794,153	€45,480,009
Nivolumab	€6,043,245	€6,275,332	€6,516,331	€6,766,586	€7,026,452	€32,627,946
Dabrafenib with trametinib	€5,601,896	€5,817,033	€6,040,432	€6,272,410	€6,513,298	€30,245,069
Totals	20,068,806	20,839,533	21,639,860	22,470,923	23,333,902	108,353,024

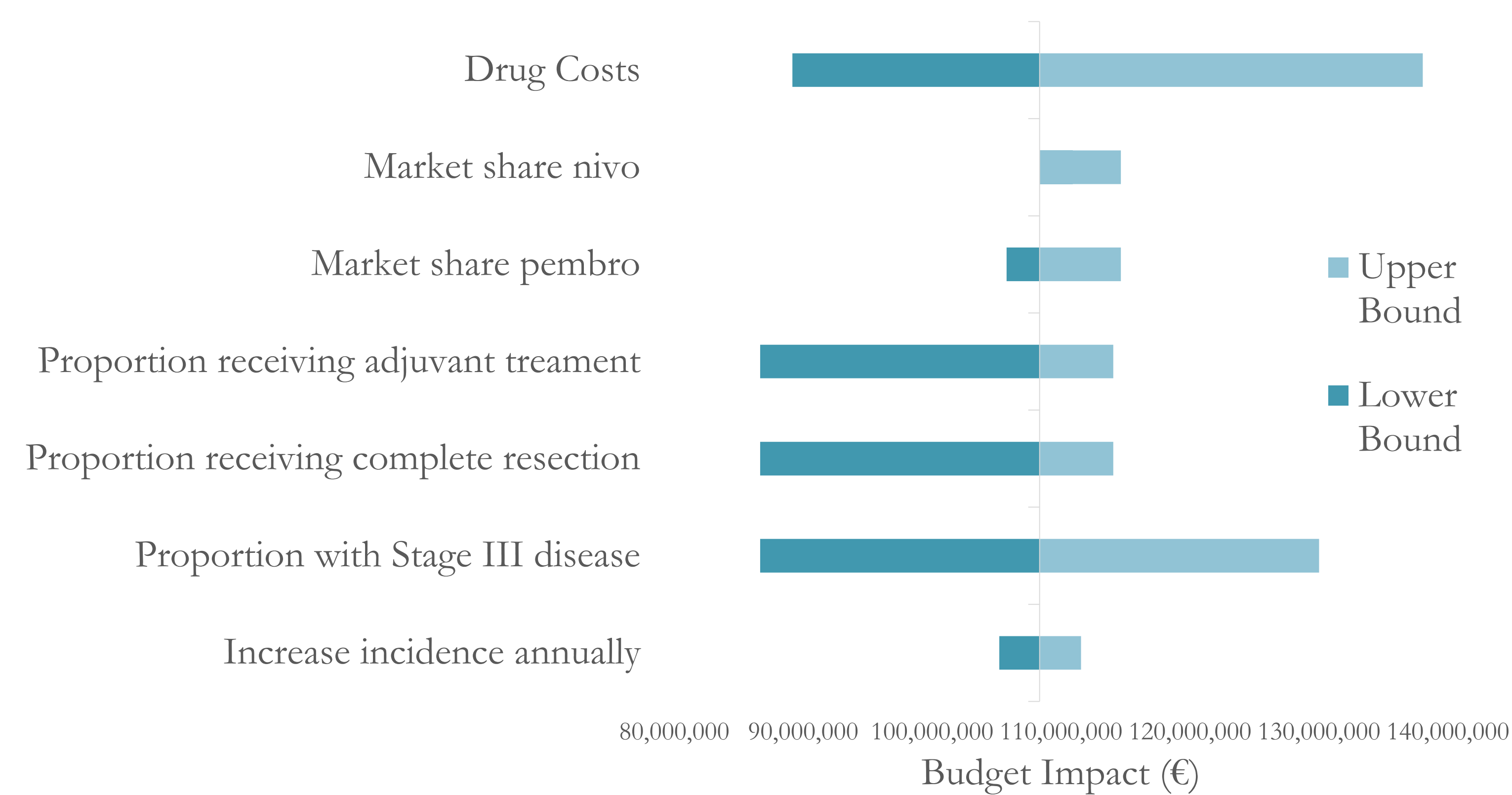


Figure 1: One-way sensitivity analysis showing key factors influencing budget impact of adjuvant treatment

The impact of confidential rebates on the gross budget impact was explored (Table 2). Price reductions or rebates were more likely to reduce budget impact than efforts to restrict drug treatment to smaller patient populations.

Table 2: Impact of rebates on the Gross Budget Impact

Additional rebate	Gross budget impact (incl. VAT)
10%	€98,769,318
20%	€89,185,611
30%	€79,601,904
40%	€70,018,197
50%	€60,434,491
60%	€50,850,784

Conclusions

- Provision of adjuvant treatment for stage III melanoma in Ireland is expected to be associated with a significant budget impact.
- The parameters most likely to impact on budget impact are drug costs and the proportion of patients with stage III melanoma.
- Price reductions or rebates are the most effective method to reduce the overall budget impact of adjuvant treatment.
- Cost offsets in the metastatic setting, if realised, could further reduce the overall budget impact.

REFERENCES

Guidelines for Budget Impact Analysis of Health Technologies in Ireland, 2018. Health Information and Quality Authority, www.hiqa.ie
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