Exploring if a price premium is requested for cancer drugs that seek reimbursement on state-subsidised schemes in Ireland

An analysis of drugs that have undergone a full HTA by the NCPE in Ireland between 2019 and 2023.

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INTRODUCTION

Cancer is a leading cause of death worldwide. The World Health Organization (WHO) reports 10 million deaths as a result of cancer in 2020, equivalent to nearly one in six deaths (1). Recently developed drugs and immunotherapies deliver significant benefits to cancer patients, improving survival rates and quality of life. However, new oncology drugs can carry particularly high prices among therapeutics, and the rising prices of these new drugs may threaten patient access, alongside the long-term financial sustainability of cancer treatments. This represents a global health challenge both to patients and healthcare systems. In the EU, shortages of cancer medicines have also increased, making overcoming these challenges an important goal for 'Europe's Beating Cancer Plan' (2). In the Irish context, spending on drugs (as well as medical appliances) through state-subsidised schemes (Primary Care Reimbursement Service; PCRS) increased by 43% between 2015 and 2023 (3). However, the largest increase in spending among PCRS programmes was for cancer drugs. Annual allocations for new cancer drugs increased from €11.08 million in 2015, to €25.34 million in 2023, representing a 129% increase over an 8-year period (3).

A 2023 cross-sectional study found cancer drugs on average three times more expensive compared with non-cancer drugs in the US, Switzerland, and Germany (4). This analysis found a significant positive association between relative drug efficacy and treatment prices, for both cancer and non-cancer drugs. However, the relationship was not as strong for cancer drugs; suggesting that the magnitude of clinical benefit may not be as influential on drug prices for cancer drugs compared with non-cancer drugs. It has been argued that R&D costs for cancer drugs exceed those for non-cancer drugs, thus higher prices are required to recoup R&D costs. Conversely, other voices have argued that the R&D system for cancer drugs is over-incentivised and leads to the development of marginal drugs (5). A study of the association between estimated R&D investment and cost of new drugs approved by the FDA between 2009 and 2018 found no association between R&D costs and list prices at drug launch (6).

Within the Irish context, the growth of expenditure on cancer drugs is accelerating at a rapid pace (3,7) and cost containment measures, such as mandated prescribing of biosimilar medicines, and managed access protocols need to be considered. Another unknown is whether a price premium exists for cancer drugs. This is challenging to measure in the Irish context due to a lack of transparency regarding confidential prices agreed upon reimbursement (due to commercial sensitivities). However, information regarding list prices are available from the Technical Summary published on the National Centre for Pharmacoeconomics (NCPE Ireland) website.

AIMS & OBJECTIVES

Aim of the study

The aim of this study was to investigate if a price premium was sought for cancer drugs that had undergone a full HTA by the NCPE Ireland.

Objectives of the study

1. To identify drugs that have undergone a full HTA assessment between 2019 and 2023, inclusive, by the NCPE in Ireland, categorising these drugs depending on whether they are for oncology or non-oncology indications.
2. To extract
    i. the cost of oncology and non-oncology drugs over the study period;
    ii. drug efficacy data;
    iii. epidemiological data relating to the indication.

3. To determine if a price premium was requested for oncology drugs compared with non-oncology drugs which had undergone a HTA assessment by the NCPE Ireland during this timeframe.

METHODS

Extraction of data from NCPE website and documents:

- **Identify drugs that had undergone a HTA between 2019 and 2023, inclusive.**
- **Extract data relating to submission year, HTA identification number (if available), generic drug name, drug brand name, ATC code and therapeutic indication.**
- **Extract data relating to comparators used in the HTA.**
- **Incremental Quality Adjusted Life Year (QALY) gains; average of incremental QALY gains if multiple comparisons included.**
- **Data relating to drug pricing**

Extraction of data from European Public Assessment Report (EPAR) available from EMA website:

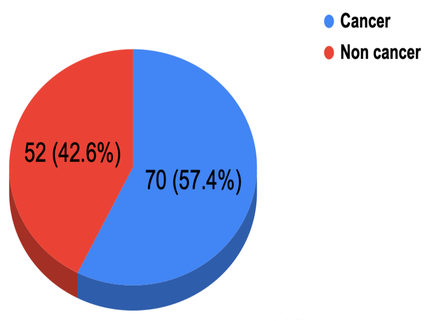
- **Trial hypothesis design.**
- **Randomised Controlled Trial (RCT) or not**
- **Clinical endpoints**
- **Outcomes that informed the HTA (cross-referenced with NCPE Technical Summary)**

Extraction of epidemiological data from Global Burden of Disease study:

- **Epidemiological data from the year prior to market launch (assumed to be year before Rapid Review (RR) submission).**
- **Data collected in the GBD were dated up to 2019. As such, RRs dated after this were associated with the data collected in the 2019 Global Burden of Disease Study.**
- **Incidence, prevalence and mortality data.**
- **Top-level disease epidemiological data only i.e. indication may be for metastatic triple negative breast cancer, but only epidemiological information for breast cancer was available.**

RESULTS

Drugs included in study



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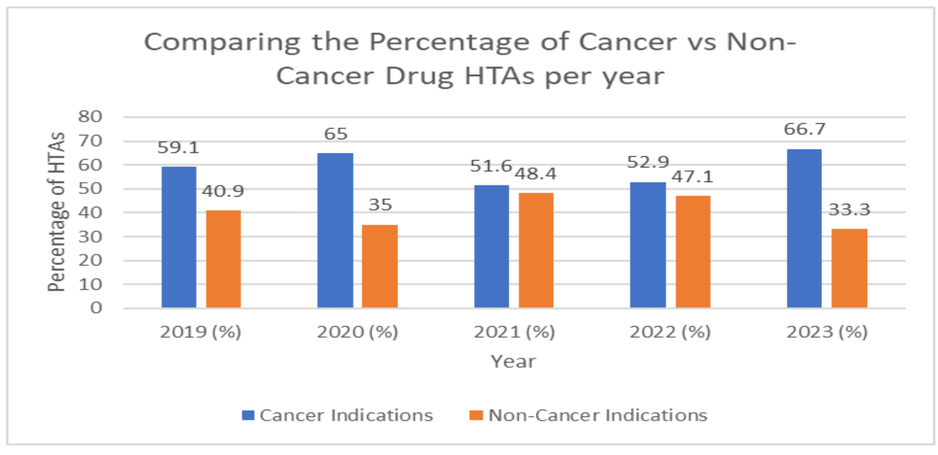
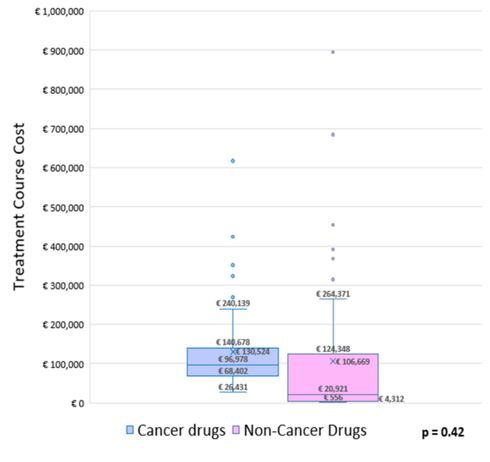


Comparing mean treatment course costs (adjusted to 2022 costs)

***excludes Zolgensma® and Libmeldy®**



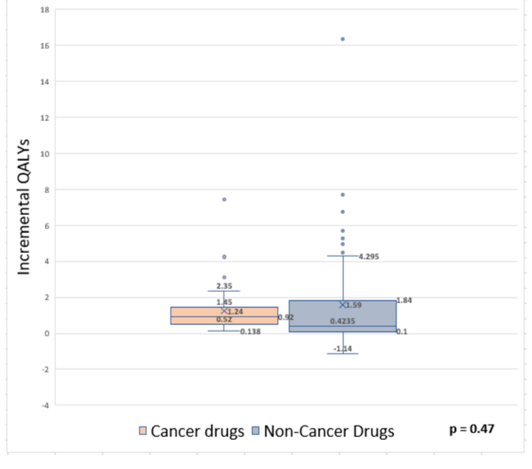
Mean treatment course costs were extracted from the NCPE Technical Summary. If no mean treatment course duration or cost was presented, the annual treatment course cost was used.

Value Added Tax (VAT) was included in the calculation, where applicable.

Due to Zolgensma® and Libmeldy® having treatment costs in excess of €1 million, they were excluded from the treatment course cost comparison as they skewed the mean for non-cancer drugs.

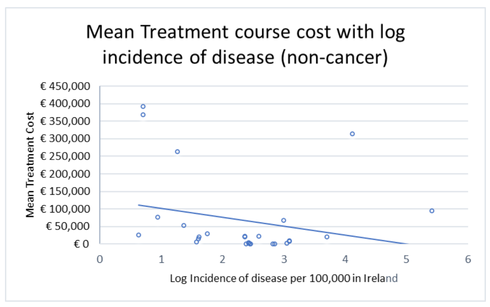
The mean treatment course cost of cancer drugs was higher than non-cancer drugs (€130,524 versus €106,669) although this result was not found to be statistically significant (p=0.42).

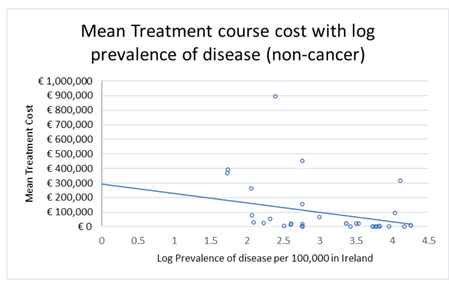
Comparing incremental QALYs (as per NCPE adjusted base case)

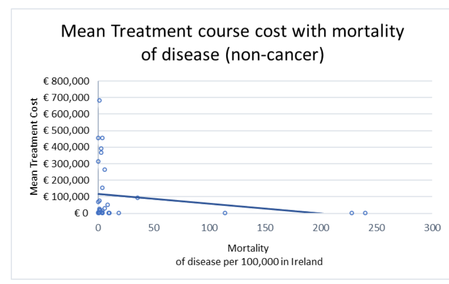


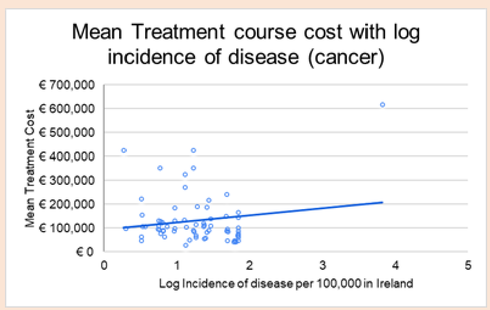
Association between treatment course costs and disease burden

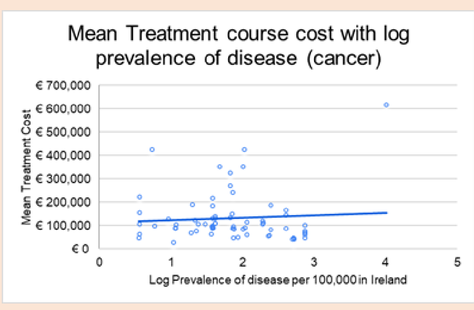
Incidence	Prevalence	Mortality
Non-cancer drugs	Non-cancer drugs	Non-cancer drugs
Cancer drugs	Cancer drugs	Cancer drugs

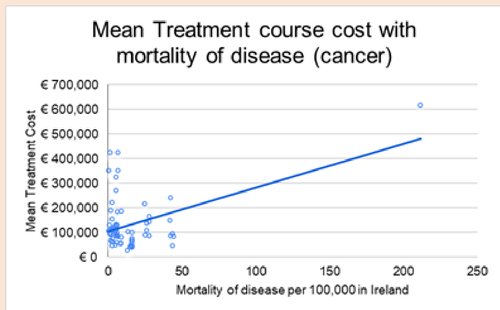












Characteristics of pivotal trials underpinning regulatory approval for cancer and non-cancer drugs that underwent HTA assessment by the NCPE (2019-2023).

Trial data	All Drugs (n=122)	Cancer Drugs (n=70)	Non-Cancer Drugs (n=52)
Randomised controlled trial (%)	107 (87.7%)	60 (85.7%)	47 (90.4%)
RCTs which tested for superiority (%)	103 (96.3%)	59 (98.3%)	44 (93.6%)
Overall survival primary endpoint (%)	24 (19.7%)	22 (31.4%)	2 (3.85%)
	(n=121)	**(n=70)**	**(n=51)**
Overall survival secondary endpoint (%)	27 (23.1%)	25 (35.7%)	2 (3.9%)
Phase (%)	**(n=122)**	**(n=70)**	**(n=52)**
Phase 1	1 (0.8%)	1 (1.42%)	0 (0%)
Phase 2	19 (15.6%)	12 (17.1%)	7 (13.5%)
Phase 3	102 (83.6%)	57 (81.4%)	45 (86.5%)

DISCUSSION

Our study found that estimated mean treatment course costs for cancer drugs were numerically higher than treatment course costs for non-cancer drugs, but the difference was not statistically significant. The study identified a number of challenges in accurately measuring the difference between treatment course costs for cancer and non-cancer drugs. Firstly, it would have been advantageous to measure the cost per daily defined dose (DDD) for each drug included in the study and ascertain if there is a difference between cancer and non-cancer drugs in mean cost per DDD. However, this was not possible as many cancer drugs that are administered intravenously on specified days of a treatment cycle do not have an associated DDD. This approach may work well if the analysis was limited to oral medicines given on a daily basis. Secondly, it was not possible to standardise the treatment duration as cancer medicines may be administered for fixed periods of time (or less than one year), compared with some non-cancer drugs, which may be administered on a continuous basis. There was also inconsistencies in how treatment duration was reported in the NCPE Technical Summary. Finally, estimated treatment course costs may not be reflective of actual treatment course costs, once confidential negotiations have been taken into account. As this information is not publicly available, it was not possible to calculate the actual treatment costs. It may be possible that bigger confidential discounts are negotiated for cancer drugs following completion of the HTA assessment, resulting in lower treatment course costs. However, it is unknown if that is the case.

A positive correlation was found between mean treatment course cost for cancer drugs and the incidence and prevalence of the cancer type. However, the relationship was even stronger for the associated mortality rate of the cancer type, suggesting that increased lethality of the cancer type is associated with higher treatment course costs. It should be noted that epidemiological data obtained from the Global Burden of Disease study were limited in that only information relating to the top-level disease could be provided. It would have been more advantageous to use data from national registry sources such as the National Cancer Registry of Ireland, although there are no little to no corresponding national registry data sources available for non-cancer indications. Initially, we had envisioned using treated patient numbers estimated in budget impact analyses. However, we found that estimated patient numbers were not routinely reported in the NCPE Technical Summary.

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