Cost of treatment of metastatic non-small cell lung cancer in Sweden, 2011–2023

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- **Treatment patterns for mNSCLC have shifted over the past decade, driven by the adoption of novel anti-cancer therapies.**
- **The total 5-year healthcare cost has increased from €171 million in 2011–2013 to €607 million in 2017–2020.**
- **IO therapy use rose sharply after 2015, reaching a first-year mean cost of €106,707, which declined to €13,342 by year 5.**
- **EGFR- and ALK-targeted therapies showed persistently high but stable annual costs, ranging from €45,714 to €81,565 in the first and subsequent follow-up years.**

Disclosures

KK is currently employed by AstraZeneca, and MS is a former employee of the company..

Background

The treatment of metastatic non-small cell lung cancer (mNSCLC) in Sweden has shifted over the past decade from chemotherapy to targeted and immune-oncology (IO) therapies. While these drugs improved outcomes, their high acquisition costs raised concerns about long-term affordability. This study assessed nationwide treatment patterns and the associated healthcare costs over time, using real-world registry data.

Method

Patients with mNSCLC diagnosed between 2011 and 2020 were identified from the national lung cancer register with linkage to the national health registries. Costs of inpatient and outpatient care were estimated using DRG tariffs; oral and intravenous drug costs were derived from prescription and the Individual Patient Overview (Individuell patientöversikt) data, using the retail list prices, including VAT. Costs were adjusted to 2023 in euros (€). For temporal comparisons, patients were grouped into three diagnosis-year cohorts, 2011–2013, 2014–2016, 2017–2020, based on the year of the initial stage IV diagnosis. Patients were grouped by treatment received within the first year after diagnosis, chemotherapy (CT) alone, EGFR-targeted, ALK-targeted, or IO therapies, and followed up to five years post-diagnosis.

Results

A total of 17,107 patients were included. The use of CT alone decreased steadily, while IO therapy increased rapidly after 2015 and surpassed chemotherapy by 2019 (Figure 1). EGFR-targeted therapy use grew gradually, and ALK-targeted therapy increased since 2013.

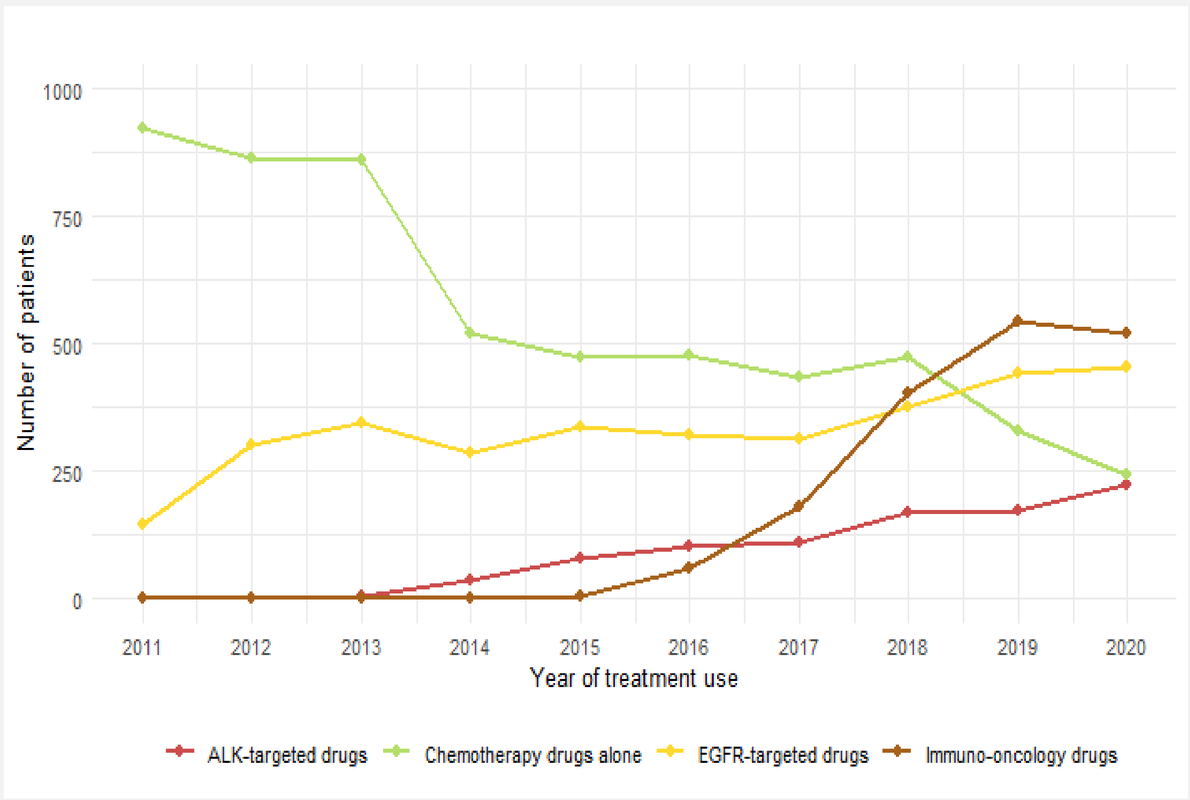

Figure 1. Trends in the number of patients by types of anti-cancer therapy, 2011 – 2020

Across all patients, total healthcare expenditure noticeably increased over time, with the 2017–2020 cohort showing a €607 million five-year total, compared to €171 million in the 2011–2013 cohort. Inpatient care accounted for 38.5% of costs, and novel therapies about 32.4%.

The mean first-year cost per patient at the start of each follow-up year was highest among those receiving IO therapy (€106,707) and declined sharply in later years (€13,342 in year 5). In contrast, EGFR- and ALK-targeted therapies had high but stable long-term costs, while chemotherapy showed the lowest overall expenditures. These costs indicate that the treatment durations observed in clinical trials are also reflected in real-world clinical practice (Figure 2).

Conclusion

Overall treatment costs have increased, reflecting the adoption of innovative therapies. IO therapies drive the highest costs during the first year but decline substantially thereafter, while EGFR- and ALK- targeted therapies maintain high yet stable costs due to their prolonged use in responders. Inpatient care continues to represent a major cost component, underscoring the broader healthcare impact beyond drug expenditures.

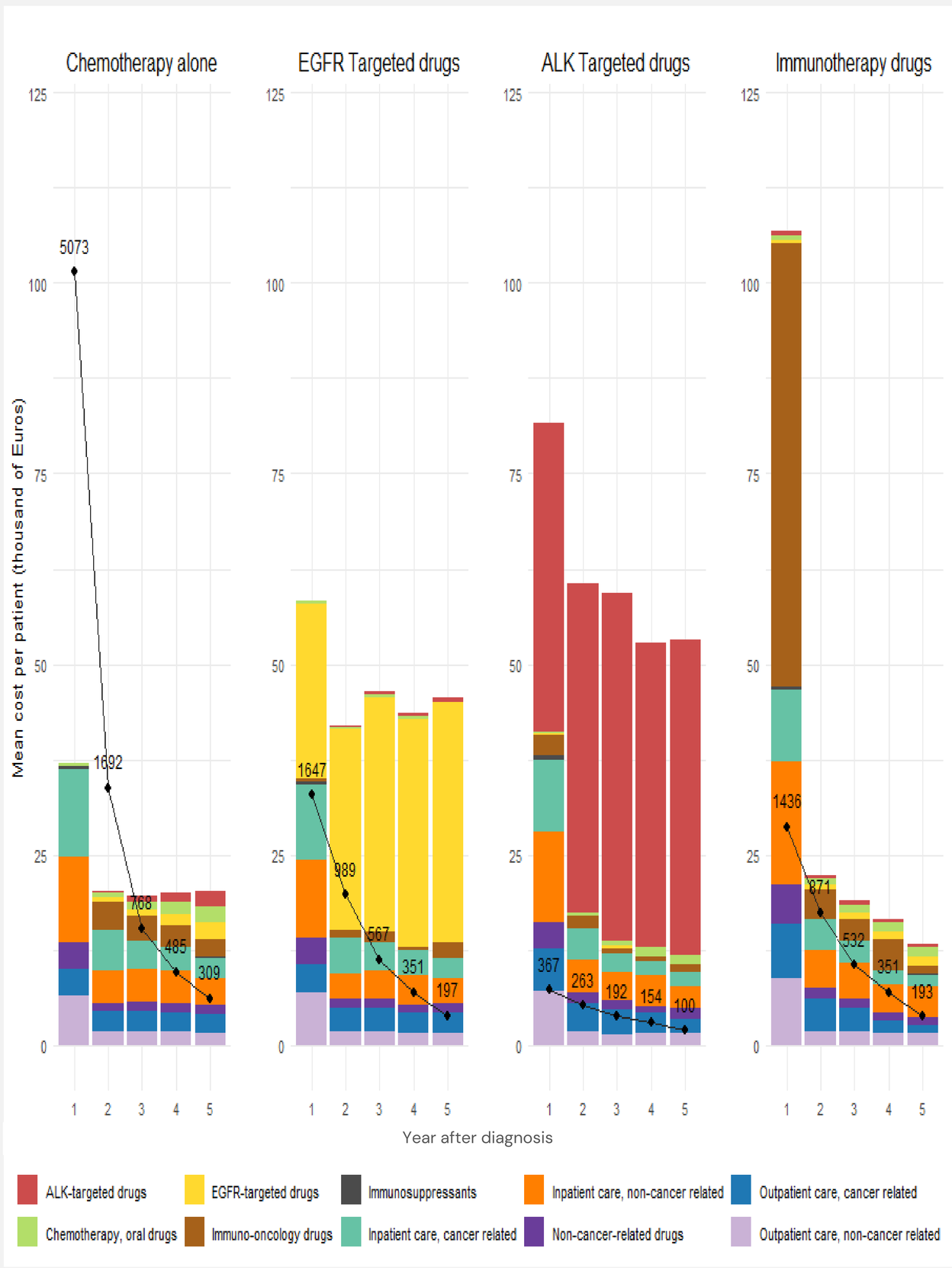

Figure 2. Mean cost per patient by type of anti-cancer therapy, in thousand Euros (numbers above indicate patients at risk at start of each follow-up year)

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