





Health-care utilization and related costs in patients with metastatic non-small cell lung cancer receiving treatment during the immunotherapy era

Lior Apter^{1,2}, Sarah Sharman Moser³, Sivan Gazit³, Gabriel Chodick^{3,4}, Moshe Hoshen³, Dan Greenberg², Nava Siegelmann-Danieli

- 1. Health Department, Maccabi Healthcare Services, Tel Aviv, Israel.
- 2. Department of Health Policy and Management, School of Public Health, Faculty of Health Sciences, Ben-Gurion University of the Negev, Be'er-Sheva, Israel.
- 3. KSM Maccabi Institute for Research and Innovation, Maccabi Healthcare Services, Tel Aviv Israel
- 4. Faculty of Medicine, Tel Aviv University, Israel.

INTRODUCTION

- The introduction of immunotherapy and targeted medications in first-line (1L) therapy has revolutionized treatment strategies for metastatic non-small cell lung cancer (mNSCLC) in the last decade.
- We present real-world data on clinical outcomes and direct health care resource utilization (HCRU) and associated costs in Maccabi Health care services (MHS) a 2.8-million-member Israeli healthcare-provider.

METHODS

Study Population

- Newly diagnosed Stage IV NSCLC
 patients (>=18 years old) who initiated
 1L treatment (index date) between
 Jan 2017-Dec 2020 identified from the
 National Cancer Registry.
- Continuous healthcare plan enrollment in MHS for at least 12 months before index date.

Data Source

 Central computerized database of MHS containing longitudinal data on each patient from all clinical interactions including prescription data, laboratory tests, hospitalizations, procedures, and consultations. Supplemented with manual chart review.

Analysis

- Patients categorized by 1L treatment: platinum-based chemotherapy, targeted therapy or immunotherapy.
- HCRU and costs were calculated based on the Ministry of Health prices.
- Data cutoff: June 2021, to allow minimum 6 months follow-up.

RESULTS

Table 1.

Baseline characteristics of patients diagnosed with metastatic NSCLC during 2017-2020 who initiated 1L treatment, in the year before treatment initiation, n=886.

	Overall*, N=886	Platinum-based chemotherapy, N=177 (19.9%)	Targeted therapy, N=225 (25.4%)	Immunotherapy, N=463 (52.3%)
Age (median [IQR])	68.00 [61.00, 74.00]	67.00 [62.00, 75.00]	66.00 [58.00, 74.00]	68.00 [62.00,74.00]
Female sex	360 (40.6)	57 (32.2)	133 (59.1)	159 (34.3)
Never smokers	215 (24.3)	33 (18.6)	135 (60.0)	44 (9.5)
Histology				
Adenocarcinoma	714 (80.6)	135 (76.3)	215 (95.6)	350(75.6)
Squamous cell carcinoma	129 (14.6)	34 (19.2)	3 (1.3)	89 (19.2)
Other	43 (4.9)	8 (4.5)	7 (3.1)	24 (5.2)
ECOG Performance status				
0-1	476 (53.7)	69 (39.0)	140 (62.2)	259 (55.9)
2	116 (13.1)	31 (17.5)	19 (8.4)	64 (13.8)
3-4	55 (6.2)	5 (2.8)	12 (5.3)	36 (7.8)
Missing	239 (27.0)	72 (40.7)	54 (24.0)	104 (22.5)

*Results for patients that received any other treatment n=21 (<3%) are not shown.

Table 2:

Time on treatment and overall survival by first-line treatment type, n=886.

First-line treatment groups*	n	Number (%) discontinued	Median Time-on-treatment (95% CI), months	Number (%) died	Median Overall Survival (95% CI), months
Platinum-based chemotherapy group	177	173 (97.74%)	2.27 (1.94, 2.86)	147 (83.05%)	9.09 (7.13, 11.2)
Targeted therapy	225	140 (62.22%)	12.26 (10.65, 17.13)	100 (44.44%)	27.68 (24.16, 37.5)
Immunotherapy**	463	383 (82.72%)	4.77 (4.18, 5.79)	287 (61.99%)	12.46 (10.72, 15.4)

*Results for patients that received any other treatment n=21 are not shown. **Monotherapy and chemo-immunotherapy

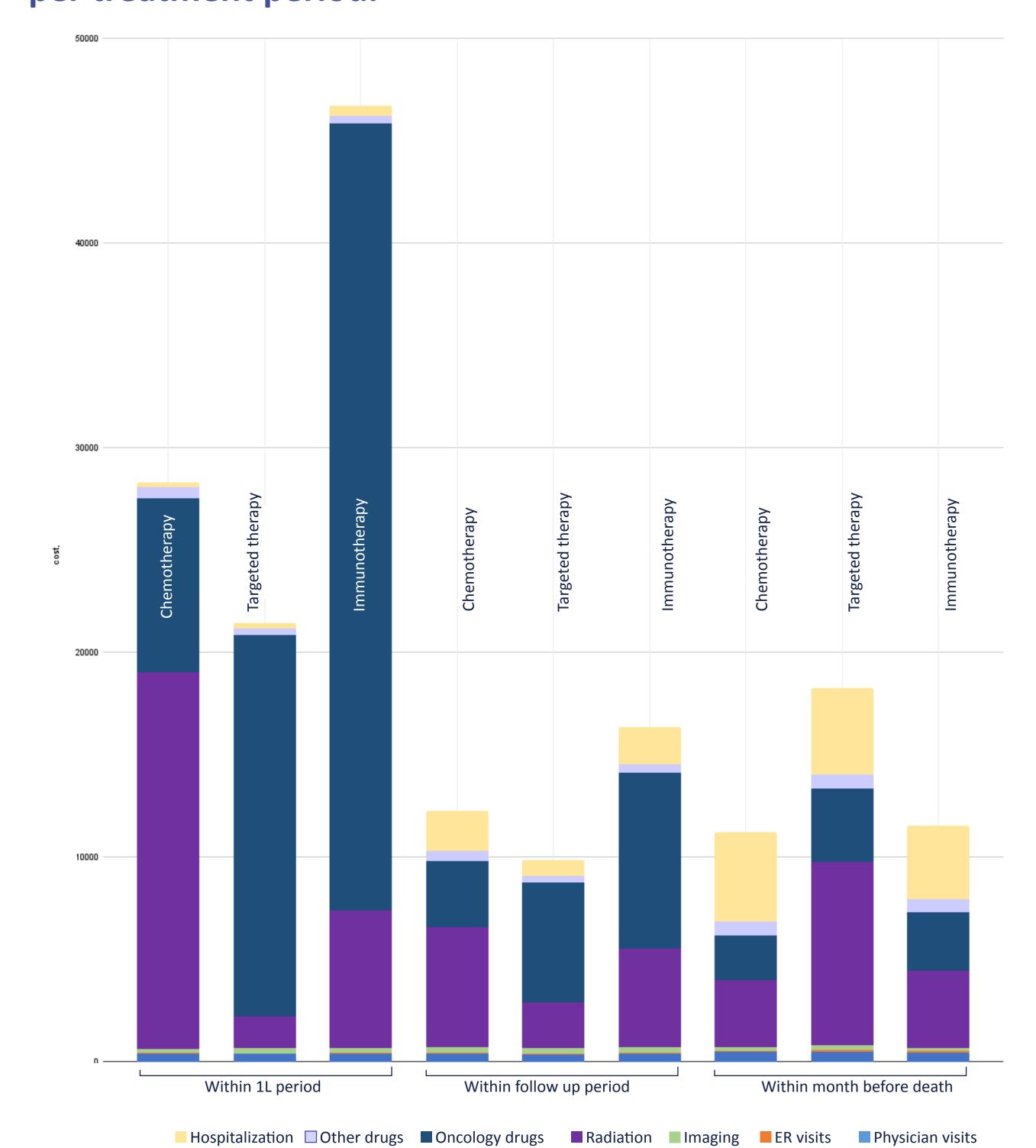
Table 3:

Mean total cost per patient for the entire follow up

First-line treatment groups*	Number (%) died	Mean monthly cost per patient (PPPM) for entire follow up period (Euros)	Mean cost per patient for those that died (Euros) N=555
Platinum-based chemotherapy	147 (83.05%)	12,267	121,154
Targeted therapy	100 (44.44%)	9,823	129,458
Immunotherapy**	287 (61.99%)	16,352	110,717

*Results for patients that received any other treatment n=21 are not shown. **Monotherapy and chemo-immunotherapy

Figure 1. Healthcare resource utilization mean costs, per-person-per-month, in Euros, split by 1L treatment groups per treatment period.



		Hospitalization	☐ Other drugs	Oncology drugs	■ Radiation	■ Imaging	■ ER visits	Physician visits
Within 1L period	Chemotherapy	234	570	8,503	18,376	178	37	411
	Targeted therapy	241	341	18,644	1,528	265	26	378
	Immunotherapy	493	377	38,459	6,728	238	30	392
Within follow up period	Chemotherapy	1,968	495	3,222	5,895	242	48	397
	Targeted therapy	736	313	5,879	2,217	294	35	349
	Immunotherapy	1,824	401	8,599	4,835	265	41	388
Within month before death	Chemotherapy	4,360	665	2,213	3,273	153	79	466
	Targeted therapy	4,247	676	3,595	8,968	213	78	486
	Chemotherapy	3,579	679	2,857	3,379	167	71	444

CONCLUSIONS

The treatment of mNSCLC carries a high economic burden, mainly driven by first-line therapy, reflecting greater use of targeted and immune therapies.

Further studies are needed to evaluate the impact of innovative treatments on the disease management costs of mNSCLC.

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Presenter contact details: Apter_li@mac.org.il

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