

End of Life Resource Use of Real-World NSCLC patients in Finland

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Background

The incidence rates of lung cancer are high, with estimated 400,000 new cases diagnosed globally each year [1,2]

- It is a leading cause of cancer-related deaths in Finland [3], causing:
 - 2300 deaths each year
 - 15.6% of all cancer deaths in Finland
- Costs are the highest among all cancers, reaching an estimated 15% of the total cancer-related costs in Europe [4,5]
- As patients with terminal cancer often require comprehensive care during final months, the expected costs of this period can be substantial.
- Lung cancer consists of various subtypes, with non-small cell lung cancer (NSCLC) accounting approximately 85% of cases.

Objectives

1. Describe the end-of-life treatment of patients with NSCLC, and
2. To analyse the end-of-life resource use of NSCLC patients during the last month of life

Results

- A total of 4,474 (71.6%) of NSCLC patients died during the follow-up
- **Mean age at death:** 73 years (SD:9)
- Last treatment (chemo-, ICI-, or TKI) was initiated a median of 171 days before death (IQR: 79-344)
- Median time from last chemo- or ICI-therapy to death was 127 days (IQR: 56-294)
- **During the last month of life:**
 - 0.15 (SD 0.8) chemo- or ICI-therapy administration
 - 1 (SD 2.6) radiotherapy visit
 - 5.8 (SD 8.0) inpatient days
 - 313 patients (7%) admitted to ICU
- Overall, 1963 patients (44%) were admitted to specialised palliative care
- The majority of lung cancer care occurs in the outpatient setting (Figure 2b)
- Towards the end of life, inpatient days are the most frequent healthcare contact type (Figure 2a)

Data Sources and Methods

- The study data was collected from the data lake of Helsinki University Hospital, HUS (Permission: HUS 56/2023)
- Adult patients living in the HUS region at the time of NSCLC diagnosis, and who died during the study follow-up, were included
- Data collection period was between January 2013 and August 2023
- Patients were followed from the first diagnosis (index) until death.

The collected data was combined from 28 separate patient data systems, including:

- Diagnoses, specialised healthcare contacts (inpatient and outpatient), laboratory measures, pathology tests and results, procedures and operations, hospital medications and prescriptions, patient texts.
- Specialised resource use, i.e., specialised care contacts, treatments and procedures, was analysed for the whole follow-up and last 31 days of life.

Table 1. Characteristics of all patients with NSCLC in the initial cohort.

	Value	N (%) of missing values
N	6248	
Age, years, mean (SD)	71 (10)	0 (0)
Sex, female, N (%)	2778 (44)	0 (0)
Resectable disease	1403 (22)	0 (0)
Histology	Resectable	
	Adenocarcinoma	3085 (49)
	Adenosquamous carcinoma	10 (0.2)
	Large cell carcinoma	30 (0.5)
	Other NSCLC	1949 (31)
PD-L1	Squamous cell carcinoma	1174 (19)
	1-49%	628 (31)
	50-100%	482 (24)
	<1%	893 (45)
Metastatic	De novo metastasis	3195 (51)
	Later progressed to metastatic	961 (15)
	No detection of metastasis	2092 (33)
Smoking status	Ex-smoker	2721 (47)
	Never-smoker	720 (12)
	Smoker	2369 (41)
ECOG performance status	0	411 (17)
	1	958 (40)
	2	623 (26)
	3-4	431 (18)
CCI (Charlson comorbidity index)	0	2239 (36)
	1	2098 (34)
	2	1113 (18)
	3	496 (8)
	4+	302 (5)
Length of follow-up, months, mean (SD)	54 (68)	0 (0)

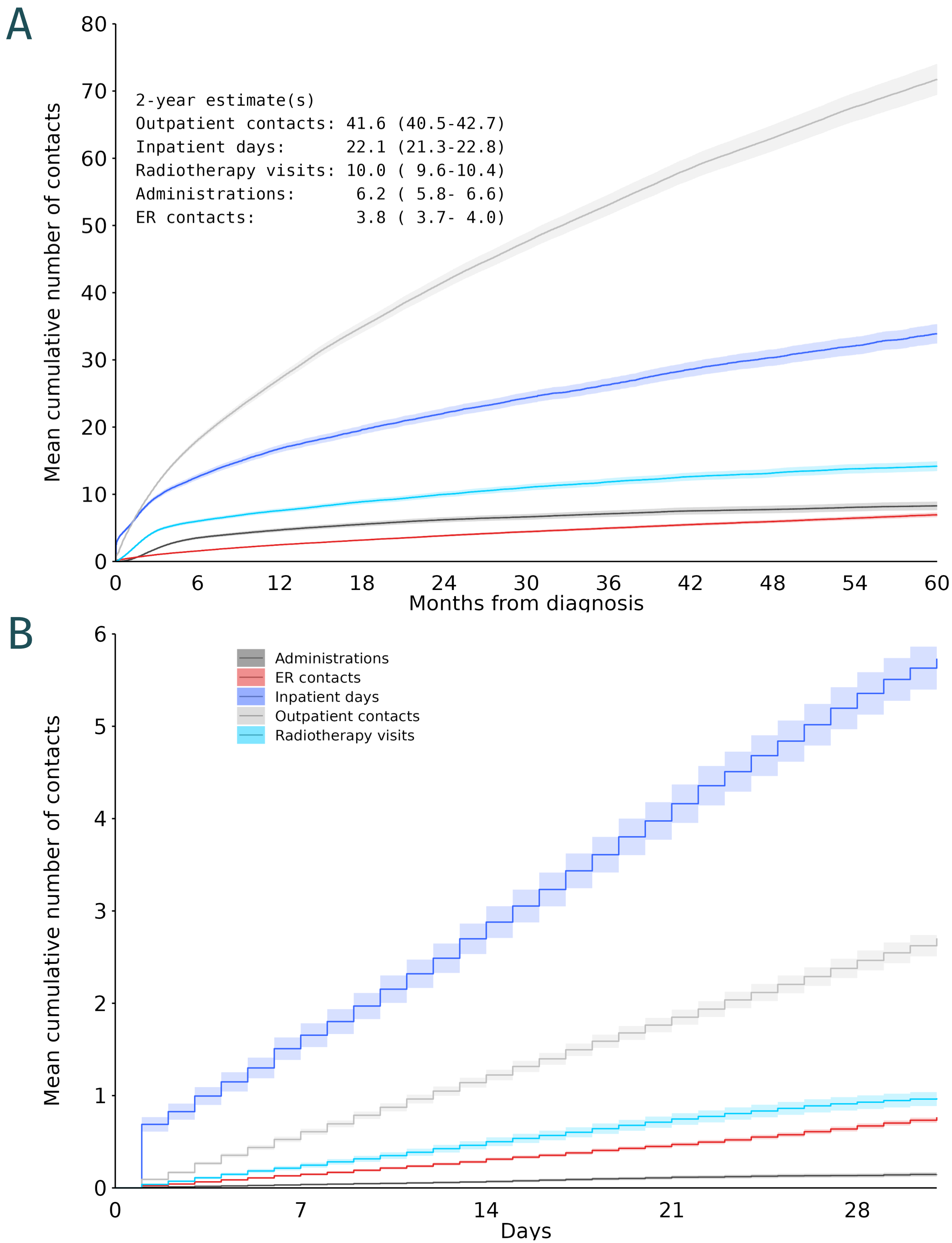


Figure 2. Cumulative HCRU of NSCLC patients per contact type **A)** from index onwards and **B)** during the last month of life.

Table 2. Treatment during the final months of life.

Variable	Value
N	4474
Age at death, years, median (IQR)	73 (67-80)
Sex, female N (%)	1822 (41)
Metastatic lung cancer at death, N (%)	3537 (79)
No. of days between start of the last treatment line and death, median (IQR)	171 (79-344)
No. of days between last treatment Chemotherapy/I-O therapy administration and death, median (IQR)	127 (56-294)
No. of Chemotherapy/I-O therapy administrations in the last month of life, mean (SD)	0.15 (0.8)
No. of radiotherapy visits in the last month of life mean (SD)	0.98 (2.6)
No. of ER visits in the last month of life, mean (SD)	0.8 (1.0)
No. of hospital admissions in the last month of life, mean (SD)	1.4 (2.2)
No. of inpatient days in the last month of life, mean (SD)	5.8 (8.0)
ICU admission in the last month of life, N (%)	313 (7)
Admission to specialised palliative care (at any time), N (%)	1963 (44)
No. of days between start of palliative care and death median (IQR)	69 (25-183)

Conclusions

- End-of-life-care should exclude treatments that provide no medical benefit for the patient.
- Although most chemo- and ICI-treatments were administered clearly before the end of life, some patients received chemo- or ICI-treatment in their last month of life.
- The results indicate an increasing need of palliative care to reduce unnecessary and unbeneficial resource use.
- Comprehensive, pre-existing RWD datasets can offer quick access to support decision-making in balancing resource use.

References

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