

# Quality of care of Non-Small Cell Lung Cancer in Luxembourg Findings from a population-based cancer registry, 2013-2014

Hanan Samouda<sup>1</sup>, Michel Untereiner<sup>2</sup>, Julien Jacobs<sup>1,2</sup>, Stéphanie Saleh<sup>1,2</sup>, Sophie Couffignal<sup>1,2</sup>

<sup>1</sup> Luxembourg Institute of Health, Luxembourg; <sup>2</sup> National Cancer Registry, Luxembourg

**Objective:** The evaluation of quality of cancer care is one of the main objectives of the National Cancer Registry (NCR). Cancer care is based on coordinated and multidisciplinary interventions, according to clinical practice guidelines. Quality indicators (QI) are developed to evaluate and improve the quality of care in a continuous and systematic way. In Luxembourg, Lung Cancer (LC) is the leading cause of death for men and the 2nd for women. The aim of this study is to analyse quality of care indicators for Non-Small Cell Lung Cancer (NSCLC) in Luxembourg, 2013-2014.

**Methods:** All new patients, with a LC (cancer site: C34) diagnosed between January 2013 and December 2014, were extracted from the NCR. Vital status was determined by linkage with the Death Certificate database (up to 2015). The following selection criteria were applied:

1. ≥ 15 years-old at diagnosis;
2. Histological type: NSCLC (ICD-O-3);
3. Invasive tumour;
4. First primary cancer;
5. Diagnosed and/or treated at least in one Luxembourgish's hospital

A set of Quality Indicators (QI) for LC was defined by the Scientific Committee and the LC clinicians working group of the NCR. **One QI for LC and 23 QI for NSCLC** were defined and analysed (table 1).

The areas covered by the QI are:

- Diagnosis
- Initial treatment: surgery, radiotherapy, systemic treatment (chemotherapy, targeted therapy)
- Process of care
- Outcomes: 30-day and 90-day mortality

For each QI, an algorithm was built to select eligible cases for the denominator and the numerator of the QI, expressed as a proportion (%). QI related to process of care are mainly median delays, expressed in days. The QI were stratified on year of incidence, age groups, gender and stage at diagnosis (TNM, 7th edition).

**Results:** 615 Lung Cancer were diagnosed in Luxembourg in 2013-2014, of which 73.3% NSCLC and 14.8% Small Cell Lung Cancer (SCLC). 348 NSCLC patients were selected for the QI. 90.7% of LC had a histological confirmation of diagnosis, and 88.2% of the NSCLC had a tumour subtype identified.

### Multidisciplinary team (MDT) meeting:

The proportion of NSCLC patients discussed at MDT meeting progressed between 2013 and 2014, from 69.6% in 2013 to 80.8% in 2014. However, only 47.3% of NSCLC patients were discussed during a pre-therapeutic MDT meeting. For these patients, the median time between MDT meeting and the first initial treatment is 21 days. The work carried out as part of the National Cancer Plan, including the publication in 2016 of the national concept for MDT meeting in oncology, should allow a significant improvement of these results.

Table 1. Quality indicators

Diagnosis – Lung cancer & NSCLC patients, Luxembourg, 2013-2014	QI%	Num	Den
Invasive lung cancer patients who have a histological diagnosis	90.7%	557	614
Patients with a histological diagnosis of NSCLC who have a tumour subtype identified	88.2%	307	348
Patients with a histological diagnosis of NSCLC, advanced stage (Stage IIIB-IV), who have EGFR & ALK mutation analysis	46.6%	89	191
NSCLC patients, undergoing surgical resection with curative intent, who have adequate histological assessment of lymph nodes, at time of surgery or during preoperative check-up	55.8%	53	95
Surgery – NSCLC patients, Luxembourg, 2013-2014			
NSCLC patients who undergo surgical resection	31.0%	99	319
NSCLC patients with clinical stage I-II, who undergo surgical resection	70.2%	59	84
Radiotherapy – NSCLC patients, Luxembourg, 2013-2014			
Patients with NSCLC not undergoing surgery, who receive radical radiotherapy (≥ 54Gy) ± chemotherapy, during initial treatment	19.2%	39	203
Patients with NSCLC not undergoing surgery, who receive radical radiotherapy (≥ 54Gy) and chemotherapy, during initial treatment	15.3%	31	203
Patients with NSCLC not undergoing surgery, who receive radical radiotherapy (≥ 54Gy) and chemotherapy, during initial treatment: Chemotherapy before radiotherapy	11.3%	23	203
Patients with NSCLC not undergoing surgery, who receive radical radiotherapy (≥ 54Gy) and chemotherapy, during initial treatment: Concurrent Chemotherapy	3.4%	7	203
Systemic anti-cancer therapy – NSCLC patients, Luxembourg, 2013-2014			
Patients with NSCLC undergoing surgical resection, who receive chemotherapy (neo or adjuvant chemotherapy)	32.0%	31	97
Patients with advanced stage NSCLC (stage IIIB-IV), not undergoing surgery, who receive a systemic anticancer therapy (chemotherapy and/or target therapy)	95.5%	149	156
Patients with advanced stage NSCLC (stage IIIB-IV), not undergoing surgery, who receive doublet chemotherapy, including platinum, as their first-line regimen	82.7%	129	156
Process of care – NSCLC patients, Luxembourg, 2013-2014			
NSCLC patients discussed at the Multidisciplinary Team (MDT) meeting	75.3%	262	348
NSCLC patients discussed at the Multidisciplinary Team (MDT) meeting before any initial treatment	47.3%	113	239
NSCLC patients discussed at the Multidisciplinary Team (MDT) meeting after first initial treatment	51.0%	122	239
NSCLC patients enrolled in a clinical trial for initial treatment	1.9%	6	320
Outcomes indicators – NSCLC patients, Luxembourg, 2013-2014			
NSCLC patients who died within 30 days after resection in initial treatment	1.0%*	1	99
NSCLC patients who died within 90 days after resection in initial treatment	4.0%*	4	99
NSCLC patients, not undergoing surgery, who died within 30 days after start of initial treatment	8.9%	18	203
NSCLC patients, not undergoing surgery, who died within 90 days after start of initial treatment	23.6%	48	203

\*to interpret with caution (numerator < 5); Num : numerator. Den : denominator.

**Conclusion:** The present study is the **first evaluation of NSCLC quality of care in Luxembourg**, based on the National Cancer Registry (2013-2014). Clinical practice guidelines and care pathways have, afterwards, been developed by the National Institute of Cancer. The next evaluation should investigate the evolution of these QI, according to these national recommendations.

