# Diagnostic and therapeutic challenges in the management of advanced non-small cell lung cancer among Italian medical oncologists: a national survey

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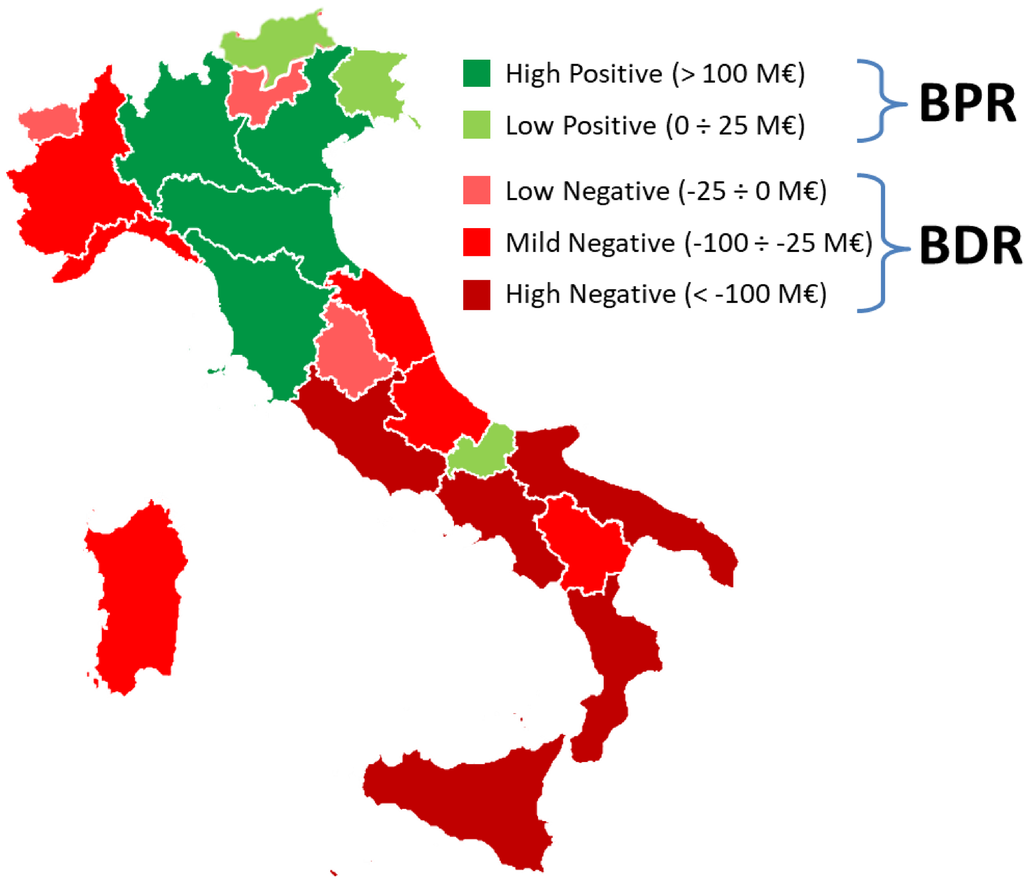
## BACKGROUND

Lung cancer represents approximately 11% of new cancer diagnosis and is the first cause of cancer-related death in men and the third in women[1]. Targeted therapies and immune-checkpoint inhibitors in the last decade have dramatically changed the landscape of treatment of advanced non-small cell lung cancer (NSCLC), and routine testing for predictive biomakers of response is the cornerstone to grant access to personalized treatments. However, the drug availability and reimbursement modalities largely differ among countries, thus resulting in heterogenous recommendation and clinical practice across them.
In Italy, "health-mobility" or "patient migration", defined as patients moving between regions to get access to health care, is an increasing phenomenon, as recently described by GIMBE in 2018[2], in an Italian national report. Health mobility can be "active" or "passive" based on whether a region is paid for offering specific services to non-resident patients or pays for other regions to offer health services to its residents. Whether routine biomarker testing and access to personalized therapies are limited in some Italian regions thus favoring health mobility deserves further investigation.

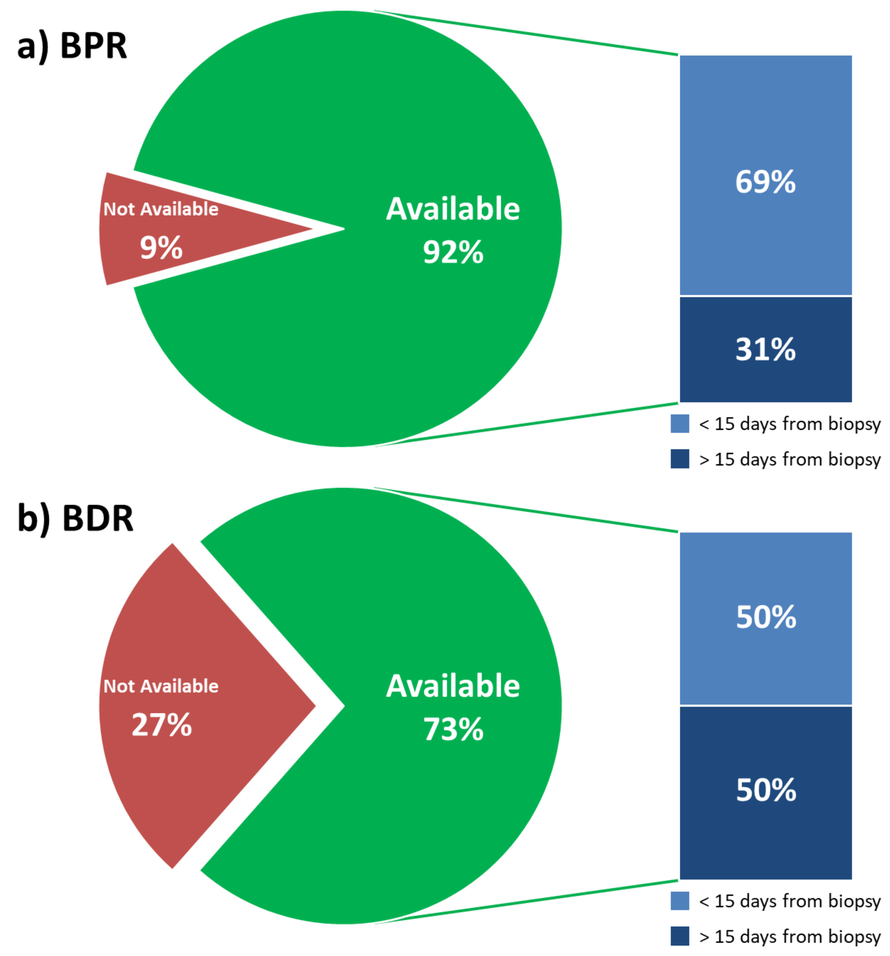
**Figure 1: Regional differentiation according to annual financial balance related to health mobility**




## MATHERIAL AND METHODS

We conducted a national cross-sectional survey between April and May 2019 to determine differences among Italian regions in terms of biomarker testing and access to personalized therapies for lung cancer.
We developed an electronic anonymous questionnaire, composed of 23 items across 3 sections: demographics, diagnostics and therapeutics.
Oncology Department Heads included in the 'White Book of Oncology' published in 2017 by the Italian Association of Medical Oncology (A.I.O.M.) were asked to complete the survey and to share it with lung cancer specialists working in the same department.
Institutions with at least 2 of the following criteria were defined as referral center for the purpose of this study: ≥50 new NSCLC patients treated/year, ≥10 active clinical trials for NSCLC, ≥10% patients referred from other regions. Based on GIMBE report n. 6/2019[2] we divided regions in budget deficit regions (BDRs) and positive budget regions (BPRs).

**Figure 2: Molecular test availability in a) Budget Positive Regions and b) Budget Deficit Regions**




## RESULTS

Overall, 81 out of 282 (28.7%) lung cancer specialists across the 20 Italian regions agreed to participate in the study.
The geographical origin of the participants was well distributed across the country, with 32 respondents (39.5%) belonging from BDRs and 49 (60.5%) from BPRs. Respondents from thoracic oncology referral centers were 10/31 (32.3%) and 18/47 (38.3%) in the BDRs and BPRs group, respectively.
At least 10% of patients were referred to an outside institution according to 28.6% and 62.5% of respondents from BPRs and BDRs respectively.
Diagnostic assays for EGFR/ALK/ROS1 and PD-L1 were reported to be available in 43/47 (91.5%) and 22/30 (73.3%) centers from BPRs and BDRs, respectively (P=0.05). 37/49 (69.4%) and 16/32 (50.0%) respondents from BPRs and BDRs, respectively, reported that molecular assessment was available in <15 days from biopsy. 80/81 (98.8%) oncologists reported that ≥75% of eligible patients received 1st line targeted therapies. Reason for not administering 1st line targeted therapies was defined as clinically-unrelated (molecular testing not available or incomplete, pharmacoeconomic issues) by 28/44 (63.6%) of respondents from BPRs and 25/31 (80.6%) from BDRs (P=0.13).
Among PD-L1 ≥50% NSCLC patients, ≥75% were reported to receive 1st line pembrolizumab by 32/49 (65.3%) and 16/32 (50.0%) of respondents from BPRs and BDRs, respectively (P=0.24). Reason for not administering 1st line pembrolizumab was defined as clinically-unrelated by 11/45 (24.4%) of respondents from BPRs and 18/31 (58.1%) from BDRs (P=0.004).

**Figure 3: % of clinically–unrelated reasons for NOT administering 1st line targeted therapies in elegible patients**

**64 % in BPRs**

**81 % in BDRs**

**Figure 4: % of clinically–unrelated reasons for NOT administering 1st line pembrozumab in NSCLC patients**

**24 % in BPRs**

**58 % in BDRs**

## CONCLUSIONS

Disparities in access to diagnostic assay and 1st line immunotherapy exist between BPRs and BDRs.
This inequality might influence the intra-national mobility of patients affected by advanced NSCLC.
Implementing timely diagnostic testing and granting access to high-cost treatments represent an urgent need.

## BIBLIOGRAPHY

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